NETWORK WORLD

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SNA EVOLUTION

IBM breathes new life into FEP family

BY MICHAEL COONEY

Washington, D.C.

IBM last week outlined plans to prolong the life of its SNA cornerstone, the 3745 Communication Controller, by adding enhancements that will bring it into the emerging ATM and APPN worlds.

At the ComNet '94 show, IBM also promised it will add frame relay and other features to the 3174 Workstation Module for its 8260 LAN hub. Additionally, the firm announced new local network management and software distribution capabilities for the NetView/6000 management platform.

The 3745 plan adds a new twist to the wide-ranging Asynchronous Transfer Mode strategy IBM announced last year. At that time, the only existing product Big Blue executives said would support ATM was the 3172 Interconnect Controller. But that has changed.

See **FEP family**, *page 51*

SMDS in cross fire

Industry debates SMDS' future as switched virtual circuit features loom for frame relay, ATM services.

BY JOANIE WEXLER

Washington, D.C.

Complaints from early SMDS users about the dearth of long-distance Switched Multimegabit Data Service offerings reached a near-fever pitch during the SMDS Interest Group meeting at last week's ComNet '94 show.

But a controversy arose when several industry observers argued that users do not need wide-area SMDS links to achieve their enterprise connectivity goals. The reason: Switched virtual circuit (SVC) versions of frame relay and Asynchronous Transfer Mode (ATM) are emerging that emulate SMDS' on-the-fly connectivity benefits.

The discussion left users, vendors and analysts at an impasse over SMDS' future.

"While connection-oriented SVC technologies and connectionless SMDS are technically very different, they are two ways of achieving the same thing: to connect to another party in real time without having to predefine connections," said Steven Taylor, president of Distributed Networking Associates, a consultancy in Greensboro, N.C.

"Functionally, you'll be extremely hard-pressed to find a difference between SVCs and SMDS, so the ultimate decision will come down to price and availability," he said.

To date, MCI Communications Corp. is the only major long-haul carrier to offer interexchange SMDS service, although start-ups are beginning to get into the act (see story, page 50).

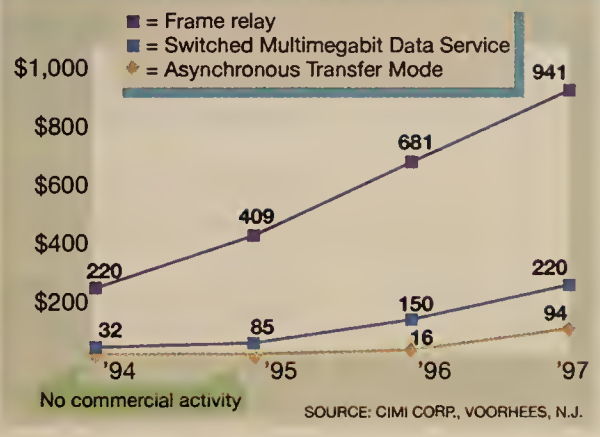
Last week, MCI and Bell Atlantic Corp. turned on the industry's first local-to-long distance SMDS link. Their combined networks are connecting customers such as Meridian Bancorp in Pittsburgh, Quebecor Printing in Boston and Signet Banking Corp. in Richmond, Va., to cities in other regions.

But that advance, involving just one Bell company and one long-distance carrier, makes a mere dent in connectivity requirements, users said. "When we talked to MCI two weeks

See **SMDS**, *page 50*

Fast packet service showdown

Projected U.S. service revenue (in millions)



SOURCE: CIMI CORP., VOORHEES, N.J.

Software shop throws DEC users a lifeline

BY JIM DUFFY

Washington, D.C.

Users fretting over the retirement of Digital Equipment Corp.'s Polycenter Framework management product can seek comfort from a small software shop in the Maryland countryside.

Ki Research, Inc. of Columbia, Md., last week said it is ahead of DEC in offering the roughly 1,000 Polycenter Framework users a migration path to IBM's NetView/6000 and Hewlett-Packard Co.'s OpenView network and systems management platforms.

At the ComNet '94 show here, Ki disclosed an agreement with Phoenix Network Technologies, Inc. of Fountain Hills, Ariz., to develop software that will forward alerts from DECnet nodes to OpenView and

See **Lifeline**, *page 51*

Ki projects

Ki Research, Inc.'s efforts to help users move from Digital Equipment Corp. management systems to others include:

- Developing technology with Phoenix Network Technologies, Inc. to forward DECnet alerts to Hewlett-Packard Co. OpenView and IBM NetView/6000.
- Supporting OpenView 3.3's SNMP proxy agent.
- Abandoning SunConnect and NetLabs, Inc. development.

Novell preps AppWare tools for a wary customer base

BY CARYN GILLOOLY

Framingham, Mass.

Novell, Inc. was on the road last week singing the praises of its AppWare application development products and highlighting new third-party modules that promise to foster development of network-ready applications.

AT&T, Eastman Kodak Co., Attachmate Corp. and other vendors have agreed to provide AppWare Loadable Modules (ALM) that give AppWare support for services such as imaging, telephony and LAN-to-host connectivity.

In addition, Novell said it plans to introduce its own Open Database Connectivity (ODBC) middleware ALM, as well as ALM versions of its NetWare Directory Services (NDS) and Tuxedo transaction monitor.

All the products are expected to be delivered at a formal AppWare coming-out party in May, which is intended to signal its readiness for mass consumption by network users.

But at this juncture, almost a year since AppWare's introduction, most Novell users don't know what it is or why they need it.

UNDER THE COVERS

The goal of AppWare, according to Novell, is to help accelerate the development of network applications. The product consists of three primary pieces: Visual AppBuilder, AppWare Bus and AppWare Foundation.

Visual AppBuilder is a fifth-generation language ap-

See **AppWare**, *page 8*

Boeing gives next Microsoft E-mail system a flight test

BY ROSEMARY CAFASSO

Seattle

The Boeing Co. is putting Microsoft Corp.'s next-generation electronic mail system through its paces and has yet to find any serious flaws.

Craig Dupler, a systems analyst in the integrated work group technology group of Boeing Computer Services, said Microsoft's Enterprise Messaging Server (EMS) has powerful management and security features, although its X.500 directory support still needs some work. Dupler stressed that his opinions about EMS are his own and do not necessarily reflect those of his firm.

Once you look at Microsoft Enterprise Messaging Server, the versions of Microsoft Mail and cc:Mail start to look like toys.

Craig Dupler
Boeing

While the aerospace company has not made a commitment to purchase EMS, Dupler said he is impressed with the messaging software overall.

"Once you look at EMS, the shipping versions of Microsoft Mail and [Lotus Development Corp.'s] cc:Mail start to look like toys," he said.

See **Boeing**, *page 50*

100

Briefs

Raising the rates. Expect your phone bill to go up if you're an AT&T business customer. The carrier last week filed for rate increases averaging 4% on its business long-distance and 800 services that are scheduled to go into effect by Feb. 1. AT&T instituted a similar rate increase in July. The company said the moves are efforts to align prices more closely with the cost of doing business.

Competitors MCI Communications Corp. and Sprint Corp. generally follow AT&T's lead in price hikes, but neither company could be reached for comment.

Ambitious ATM plans for GTE. GTE Telephone Operations last week said it plans to deploy more than 60 Asynchronous Transfer Mode (ATM) switches in 13 states throughout 1994 and 1995. The company said it intends to offer ATM service across its existing Synchronous Optical Network infrastructure.

What's in a name? Feeling more like part of the AT&T family, NCR Corp. last week announced it will change its name to AT&T Global Information Solutions. The AT&T subsidiary said the new moniker "clearly reflects its unique set of global capabilities in computing and communications." NCR's brand name will continue to be used where it is highly recognized.

Codex chief bids adieu. Motorola Codex President and Chief Executive John Lockitt resigned suddenly last week, just a week after parent Motorola, Inc. announced a reorganization that diminished his responsibilities. Lockitt had come under fire recently for lacking vision and spending too much on research and development, according to ex-employees and analysts. His responsibilities will be assumed on an interim basis by Frank Lloyd, vice president of Motorola's Information Systems Group.

Big Blue in the black. The dry spell is over for IBM, as the company last week reported its first profitable quarter in almost two years. The firm earned $382 million in the fourth quarter of 1993, compared with a loss of $45 million in the fourth quarter of 1992. For the year, however, IBM was socked with an $8.0 billion loss — worse than the $6.9 billion it lost in 1992.

Novell pumps up router. Novell, Inc. last week announced support for frame relay, data compression and remote installation on its software-based NetWare Multiprotocol Routers (MPR). Novell's MPR 2.11 and MPR Plus 2.11 also will include new filtering capabilities that will allow users to reduce broadcasts and isolate branch office traffic. The software upgrades are available now.

Microcom in the V.fast lane. Microcom, Inc. not only can build modems that run fast, but it can make them affordable, too. The company this week will unveil two 28.8K bit/sec modems that will establish a new price point for devices adhering to V.fast, an emerging ITU modem standard for transmission at 28.8K bit/sec. Microcom's DeskPorte Fast ES 28.8 modem will cost $299 and will be available this week. The DeskPorte Fast EP 28.8 will cost $399 and will ship in February. Last year, Microcom established the previous price point for V.fast devices at $499 (*NW*, Oct. 18, 1993, page 4).

Sun warms up to CTI. Sun Microsystems, Inc. last week unveiled Customer Management Solutions, a client/server computer-telephony integration (CTI) platform for applications that help businesses manage customer service. Sun has teamed with AT&T Network Systems, MCI Communications Corp., SynOptics Communications, Inc. and others to bring T-1 pipes carrying interactive data, voice, imaging and video directly into desktop workstations.

Contacts

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I am looking for a NetWare management product that will give me comprehensive reports in: individual connection to a server for a period; bytes transmitted to the server from each individual workstation for a period; bytes read and written to the server hard drive; and current disk usage. Do you know of any products that provide these services?

Min Christopherson, Los Angeles

Ronald Nutter, escalation manager of 900 Support, a 24-hour, seven-day-per-week NetWare technical support company in Lake Oswego, Ore., replies:

Unfortunately, there may not be one product that will meet all your NetWare management requirements. However, here are some products you may want to check out:

At the higher end, Novell, Inc.'s NetWare Management System (NMS) will provide network monitoring services such as the automatic discovery and mapping of network devices, monitoring of network changes and management of alarm information. Base pricing for NMS is $2,500. For more product information, call (800) 638-9273 or (801) 429-5588.

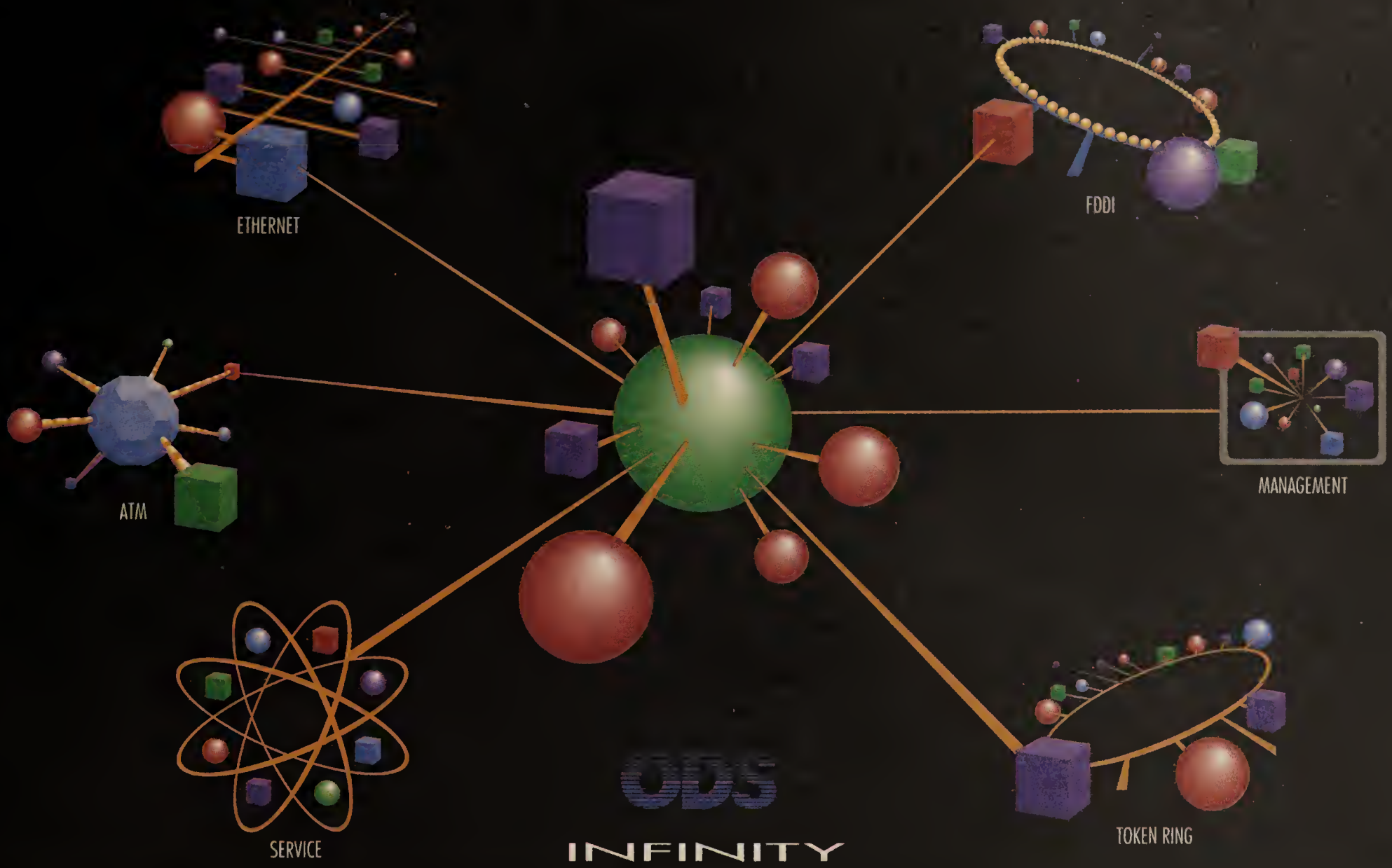
Also at the high end, is Hewlett-Packard Co.'s HP OpenView Node Manager for NetWare — a pair of applications that allows net administrators to manage and control PCs and servers in a NetWare network. Net administrators can manage local and networkwide disk usage, make changes to hardware components or configuration files, update software versions and monitor memory. Users can monitor key performance statistics about NetWare servers, including CPU utilization, number of users, number of connections to each server, memory usage and available disk space. HP OpenView Node Manager for NetWare Stations costs $6,750, and HP OpenView Node Manager for NetWare Servers

See **Help desk**, *page 36*

CONTENTS

NEXT WEEK:

Users, analysts, vendors and other industry observers sound off on who should replace Ray Noorda at Novell, Inc., the impact his departure will have on the company and issues the new chief will face.



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INTERNETWORKING

ACC, IBM, Proteon target remote routing market

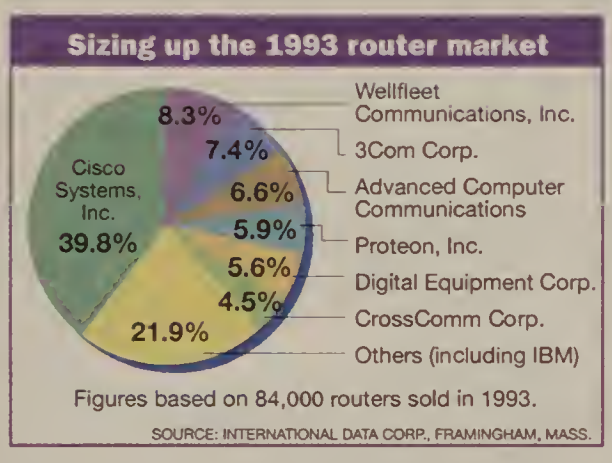
BY MICHAEL COONEY

Washington, D.C.

Advanced Computer Communications (ACC), IBM and Proteon, Inc. were harping on a similar theme with ComNet '94 router announcements last week — tying remote branch offices into enterprise internets.

IBM and Proteon said they will jointly develop a family of low-cost branch office routers, while ACC introduced Amazon, a mid-range offering designed to link numerous branch offices to a high-speed backbone.

"This will be the 'year of branch office routing' because users are increasingly looking to tie existing remote LANs or remote offices using SNA more effectively to a central location," said Lynn Nye, president of NetResults Consulting. "As companies move toward collaborative work amongst remote employees and work groups, they will need solutions like this."



Under terms of the IBM-Proteon agreement, IBM will manufacture the new routers, while Proteon will develop most of the software. Both companies will sell and support the product.

Although the announcement was short on details, both firms said the new family of routers would complement — instead of compete, their existing router lines. IBM's 6611 Model 120 and software-based RouteXpander/2 — as well as Proteon's DNX 300 Series, are already targeted at the branch office market.

"For example, the routers will be less complex and costly than the 6611, but they'll be more functional than the RouteXpander/2," said Jon Fjeld, director of networking routing systems at IBM.

Analysts said the IBM-Proteon routers will likely consist of about four models capable of supporting anywhere from two to four Ethernet or token-ring ports and as many as four wide-area network links ranging in speed from 56K bit/sec to T-1.

According to Fjeld, the new boxes will also support the Open Shortest Path First and Point-to-Point Protocol (PPP) routing protocols, plus Transmission Control Protocol/Internet Protocol and Novell, Inc.'s Internetwork Packet Exchange (IPX). IBM's Data Link Switching for routing Systems Network Architecture and Network Basic I/O System traffic over TCP/IP will be included, as will source route bridging and source route transparent bridging.

Paul Toldalagi, vice president and general manager of Proteon's internetworking systems division, also announced that the firm has licensed IBM's Advanced Peer-to-Peer Networking (APPN) Network Node software from IBM and that APPN technology will be incorporated into Proteon's new and existing routers.

The products, expected by May, should cost between $3,000 and $6,000.

"The most surprising aspect of the IBM-Proteon agreement is how extensive it is and how far along they already are in bringing this product to market," said Robin Layland, principal consultant with the Layland Consulting firm in West Hartford, Conn. "This means users can get the routing expertise of Proteon and the networking expertise of IBM for the price of one."

Other experts said the announcement will help position both firms in a market that is expected to explode in the next few years. For example, Forrester Research, Inc. says the Fortune 500 firms alone have more than 225,000 offices with fewer than 12 employees in each who need connectivity with the corporate backbone.

ACC, with its Amazon router, hopes to fill another need for those companies. Amazon has three times the performance and more than quadruple the port density of its existing mid-range router, the ACS4200.

It is designed to support large regional offices, acting as the link between small remote office routers and a central site device. "In terms of capacity and the ability to aggregate a large number of WAN ports, the 4200 was a bit underpowered," said Gary Krall, vice president of marketing and business development at ACC.

Amazon comes with two Ethernet interfaces built onto the motherboard, three expansion slots that can be used to support additional Ethernet or token-ring interfaces and as many as 18 WAN ports. The existing 4200 can only support one local-area network interface and four WAN links.

Frame relay, X.25, High-Level Data Link Control, Integrated Services Digital Network and PPP wide-area links are supported at speeds up to T-1 and E-1. A 4-to-1 data compression capability is included, along with ACC's Express Queuing feature, which allocates available bandwidth so users obtain predictable net response times.

Amazon supports TCP/IP, IPX, DECnet Phase IV, AppleTalk I and II and Xerox Corp. Xerox Network System net protocols. The Routing Information Protocol and OSPF are also supported, as are the transparent bridging and source route bridging protocols.

Based on a 33-MHz Motorola, Inc. 68040 processor, the router can filter and forward 64-byte packets at an aggregate throughput of 15,000 packet/sec, compared to 5,000 packet/sec for the 4200. This year, ACC will offer an upgrade to Motorola's new 68060 chip, which will double that performance.

Available in March, Amazon costs $7,500 for the basic two-Ethernet configuration. Additional interface modules will be available for $75 to $4,000 each.

✆ACC: (408) 864-0600; IBM: (914) 642-5377; Proteon: (508) 642-5377.

Intel takes wraps off PC-based videoconferencing systems

BY ELLEN MESSMER

Washington, D.C.

Intel Corp. last week unveiled ProShare Video System 200, a desktop videoconferencing product that supports real-time document editing by conference participants.

The ProShare Video System 200 kit, which includes a microphone, camera and video compression card needed to outfit a 486-based personal computer, drives the cost of desktop videoconferencing to a new low of about $2,000. But the product does not support existing standards so it will not work with many of the H.320-compliant desktop and room-based videoconferencing systems sold today.

Although Intel last month helped form an industry consortium to develop an open specification for video-based personal communications by midyear, the ProShare Video System 200 supports none of the established H.320 international standards from the Telecommunications Standardization Sector (TSS), formerly known as CCITT.

This lack of standards support is a drawback for both analysts and users. Although SmithKline Beecham, Inc. beta-tested the ProShare videoconferencing system with good results, the lack of interoperability with other vendor equipment is a source of concern, said Justin Alexander, SmithKline Beecham's manager of technology. "We're probably not going to buy it," he said.

Intel is promising an H.320-compliant version of the ProShare videoconferencing kit by the end of 1994, but product manager David Wu said that version will likely be more expensive.


WALTER CALAHAN

Intel Corp.'s CEO Andrew Grove

Ann Earon, president of consultancy Telemanagement Resources International, Inc. in Lake Wylie, S.C., pointed out that a user of ProShare Video System 200 will not be able to set up conferences with PC-based systems from PictureTel Corp., Northern Telecom, Inc. and British Telecom, Inc., which comply with H.320. Nor will the user be able to communicate with the larger H.320-compli-

See **Intel,** *page 9*

Source-Comm sets new router pricing standard

BY SKIP MACASKILL

Washington, D.C.

Source-Comm Corp. will roll out a remote multiprotocol bridge/router later this quarter that costs less than $1,000, establishing a new low-cost standard that has users intrigued but analysts skeptical.

"When we went hunting for a router vendor, part of our concern was securing a low-priced configuration for remote sites," said Jeff Garfola, network systems engineer at Computer Sciences Corp. in Norwich, Conn. "That $1,000 threshold is very attractive. If a company can prove it is compatible with our other routers, then it's worth a look."

While users were predictably supportive of the low price, analysts said competitors such as Cisco Systems, Inc. and 3Com Corp. will not likely react since Source-Comm is the new kid on the block.

"This pricing could actually hurt [the industry] more than it could help," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J. "Commodity prices lower margins, which makes it more difficult for the supplier to support the user. A bridge/router is just too hard for the typical user to consume."

Source-Comm's $995 XANbox/1103, which provides one Ethernet interface and three synchronous/asynchronous wide-area network ports, supports the Internet Protocol and Novell, Inc. Internetwork Packet Exchange (IPX) network protocol. On the routing side, it supports the Routing Information Protocol and Open Shortest Path First protocol, while bridging includes the Spanning Tree Algorithm, source route bridging and source route transparent.

Bill Bakrevski, president and chief executive officer at Source-Comm, claimed the device is capable of forwarding packets with 100% line utilization at the T-1 rate, or more than 5,000 packet/sec, based on 64-byte packets.

The WAN ports, which accommodate speeds up to 64K bit/sec via RS-232, RS-422, RS-485 or V.35 interfaces, support the Serial Line Interface Protocol, the Point-to-Point Protocol and High-Level Data Link Control.

XANbox can be outfitted with optional software packages that increase the speed of the WAN ports to T-1, and add support for AppleTalk, Network Basic I/O System, frame relay and X.25 protocols, bringing the cost up to $1,500 for the Ethernet version.

A stripped-down token-ring version of the product sells for $1,495, or a little more than $2,000 when these latter options are added.

Both devices also have PCMCIA slots that will accommodate function cards the company will offer. These will add support for Synchronous Data Link Control conversion, tn3270 server functions and host gateway capabilities.

"The basic Ethernet configuration we sell at $995 was optimized to meet the needs of the majority of remote offices that need routing functions," Bakrevski said. "Even if the user adds the software options, we are still priced 50% below our competitors."

Todd Dagres, vice president of equity research at The Robinson-Humphrey Company, Inc. in Atlanta, said purchase price is not the sole factor for users.

"While the price of a box is important, the cost of ownership is more important," he said. "If you figure [that] about 65% of network costs are attributable to communications line costs and 20% goes to the staff to service and support the network, that only leaves 15% directed at equipment purchases."

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Jan Scites, president of customer services at Connecticut Mutual Life Insurance Co., accepts the Ninth Annual User Excellence Award from *NW* Editor John Gallant.

9th Annual User Excellence Awards

CS First Boston Corp. Vice President Joe Rappa cited collaboration between network staff and end users as a key factor in being named a User Excellence Award co-winner.

Sprint upgrades virtual net

BY DAVID ROHDE

Washington, D.C.

Sprint Corp. officials last week unveiled a new, more flexible Virtual Private Network (VPN) service and talked of a frame relay enhancement that is already relieving router configuration and maintenance headaches for some users.

Sprint's new VPN Premiere gives users new customization options in terms of VPN configuration, call routing and intracompany dialing plans. On the frame relay front, the carrier is offering to coordinate the purchase, installation, configuration and management of routers used with its frame relay service.

VPN Premiere is the first service resulting from the carrier's Project Darwin intelligent network effort, designed to boost customer responsiveness by removing key service logic from the carrier's Northern Telecom, Inc. DMS central office switches and placing it in centralized databases (*NW*, Sept. 20, 1993, page 1).

Marcus Canipe, Sprint's director of business product marketing, explained how VPN Premiere is expected to enhance custom net capabilities.

Under the existing VPN service, class-of-service screening is typically used to block particular offices from dialing internationally during certain hours, for example. Overriding it usually requires specific action by an office or branch manager. Under VPN Premiere, the network can automatically override the screening for a particular caller or time period.

New routing options include an enhanced version of forced route advance, which allows a seven-digit call to go first to one destination, then another. For example, a particular seven-digit number might connect to an executive's office during business hours, then to the executive's car or home at other hours, Canipe said.

VPN Premiere users will gain access to Sprint's Invoice Processing System, with new levels of detail on calling patterns, account codes and other details. Bills will be provided on compact disc or floppy disk.

Similar enhancements are expected for future Sprint announcements of an 800 Premiere service and an SDS Premiere service for switched data.

VPN Premiere is aimed at customers spending $20,000 a month or more. Unlike the existing VPN service, the new service will have only two mileage bands; a regional band including each user's home state plus neighboring states, and a national band including all other states. (Certain Northeast locations will have three mileage bands.)

Sprint's Managed Router frame relay service, meanwhile, is already burgeoning, particularly among federal government customers, said David Dorman, president of Sprint's Business Services Group.

"We have 49 large customers today without even announcing a product officially," Dorman said. He expects 150 customers by early in the second quarter.

Under Managed Router, Sprint will provide services such as:

- Coordinating the purchase and installation of routers from either Cisco Systems, Inc. or Wellfleet Communications, Inc.
- Handling software configuration and adjusting routing tables as needed.
- Responding to alarms.

Other carriers' managed router services have met with lukewarm acceptance, observers said.

"There's a good, solid demand for this type of service, especially across [the largest 1,000 U.S. firms] where there's lots of sites to connect," said Jay Batson, senior analyst with the Network Strategy Service of Forrester Research, Inc. in Cambridge, Mass. But many users fear that carriers "lack expertise," he said.

But managed networks using a fast packet service such as frame relay are a natural for Sprint, Doorman said. "We did managed networks under X.25," he said.

SITA kicks off international frame relay service offering

Vendor's service to span North America, Europe and Asia.

BY BILL BURCH

Atlanta

Old-guard packet carrier SITA last week launched an international frame relay service, hoping to capitalize on a market projected to grow to $1.155 billion by 1996.

Although the current international frame relay market comprises a little more than 100 customers that spent $108 million last year, frame relay is ready to go global, according to SITA.

The carrier will have 12 countries in Europe, North America and the Asia-Pacific region on-line by the end of June. By the third quarter, SITA plans to offer frame relay in the 35 countries with digital telecommunications infrastructures.

International frame relay has caught the attention of a number of carriers. Sprint established service to 14 cities overseas last year and has another six planned for this year, according to Laura Capaldini, an analyst with Northpoint Consulting in Ithaca, N.Y. And carriers in Australia, Finland, Hong Kong, Israel, Japan, New Zealand and South Africa have international frame relay plans.

Looking at current international suppliers, there is still room in the market for SITA, according to Thomas Jones, an analyst with New Ventures Directions, Inc. in McLean, Va. SITA has points of presence (POP) that match up well with the network needs of multinational corporations, he said.

Sterling Winthrop, Inc., a pharmaceutical manufacturer in New York, is connecting its domestic offices to manufacturing and marketing operations in the Pacific Rim via frame relay. The company currently uses BT for frame relay, but as a SITA X.25 customer, it plans to evaluate that carrier's service when it becomes available in the region, said James Vazquez, international project leader with the company.

In the U.S., Scitor-ITS, SITA's subsidiary in New York, said it will offer access to the international frame relay offering from all 50 of its domestic POPs by March.

In addition to frame relay, SITA currently offers X.25, X.28 and Synchronous Data Link Control transport services in the U.S.

When it comes to setting up international frame relay circuits, most early customers are signing up for 64K bit/sec links, said Graeme Hughes, SITA's product manager of broadband services. Some users, however, are opting for lower speed circuits and counting on frame relay's ability to burst above committed information rates (CIR) to make up the difference.

"A lot of customers don't like to see utilization averaging more than 50% of [the capacity of] their leased line," Hughes said. "Typically, you find they're around 30% to 40% loaded on average, and that can equate to around 20K bit/sec [on frame relay], even though their peak traffic might be higher."

SITA's frame relay service is available at CIR rates of 16K, 32K, 64K and 128K bit/sec, with access speeds of up to 256K bit/sec. The carrier allows instantaneous bursting at 100% over capacity and sustained bursting for unlimited periods at 50% over capacity.

SITA snapshot

- Founded in 1949 as an airline cooperative.
- Has 550 members.
- Earns $600 million in annual revenue.
- Is a worldwide data network spanning 210 countries and territories.
- Established Atlanta-based Scitor International Telecommunications Services subsidiary in 1990 to offer value-added telecommunications services.

SITA = Societe Internationale de Telecommunications Aeronautiques

SITA charges a flat monthly rate for transport within a region, with one monthly rate for traffic within Europe, for example. Other rate elements include the length of the contract and the number of sites to be served.

With a switched virtual circuit standard now available (*NW*, Jan. 24, page 1), SITA would like to offer switched circuits and is waiting for switch upgrades from Northern Telecom, Inc., the manufacturer of its DPN-100 switches, Hughes said.

SITA is also working with Northern Telecom to offer Asynchronous Transfer Mode (ATM). It plans to begin installing ATM switching gear in its backbone this year. Initially, SITA will use the switches to handle frame relay and other data services, then support native-mode ATM as demand warrants.

"The first customers will start looking at international ATM service toward the end of '96," Hughes said. "We're already planning to have ATM services in about the '97-to-'98 time frame.

Other new technology announced last week included the carrier's Sitavision network management system, a network management tool for packet services that will be out in the second quarter. With it, customers will be able to access traffic statistics and real-time fault reports.

Sybase snaps up MDI for $25m

BY PETER LISKER

Emeryville, Calif.

Sybase, Inc. last week announced plans to buy database gateway vendor Micro Decisionware, Inc, (MDI) in a deal designed to help Sybase provide users with better connectivity between client/server and legacy applications.

The $25 million transaction represents an aggressive effort by Sybase to win the business of users migrating from host-based environments to client/server networks. Sybase, a leading vendor of server-based databases and related software, estimated that there are at least 30,000 companies worldwide contemplating this move.

"The wave of the future will be to implement client/server database systems that take advantage of the massive amounts of data that exist in proprietary database systems," said Robert Epstein, Sybase executive vice president and cofounder. "The acquisition of [MDI] means that we will be able to offer Sybase users a fully functional environment to tap the rich field of data in legacy systems."

MDI is best known for its Database Gateway product line. This software resides on local-area network-based servers and allows users on client computers running Windows, OS/2 or Unix to access information in host-based databases. The gateways enable users to run applications that can tap information from a host of databases, including those from IBM, Microsoft Corp., Oracle Corp. and Sybase.

MDI, which has more than 300 customers, also

See **Sybase**, *page 9*

Newbridge ATM

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Fact: ATM is the only technology that works seamlessly across the enterprise, from desktop to the wide area network. It is ideal for public, private and hybrid networks, from the local area to true global connectivity.

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Fact: Newbridge® ATM provides an evolutionary path. Our seamlessly integrated designs will improve your network's productivity immediately without replacing existing equipment.

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Newbridge is the undisputed leader in the ATM marketplace.

Newbridge Networks is one of today's fastest growing manufacturers of network systems for public and private networks. Our flexible ATM solutions (more than 250 switches shipped to date!) form the basis for the world's first commercial ATM service (BC Tel's Ubiquity service), the first national, U.S. ATM network (MFS Datanet) and a host of other innovative networks (Pacific Bell, US West, New York Telephone and others).

Whether you choose our VIVID ATM line for LANs or our *36150 MainStreet*® ATMnet™ for WANs, you can be sure of getting the performance, scalability and proven results that come only from the recognized leader in ATM design, development and implementation.

You don't have to be using virtual reality to gain from ATM today.

Whether it's for faster information, better communications media or lower communications costs, Newbridge ATM will give you the competitive edge — today. After all, Newbridge ATM systems offer the flexibility, scalability, and manageability that a wide variety of existing high-bandwidth applications already require.

Hospitals are using ATM to share real-time video and images for long-distance consultation during diagnoses and operations. Schools are using ATM to bring students and instructors together, regardless of their locations. Designers and engineers gain by using ATM to effortlessly share even the largest data and image files. And it's a widely recognized fact that emerging applications will be even more bandwidth-intensive.

Choose Newbridge ATM for proven performance, unsurpassed compatibility, complete interoperability and total network management.

ATM is clearly the technology path for the future. But how does one plan for the future and integrate with today's network equipment and services? As the vendor with the broadest product portfolio in the industry, Newbridge is in a unique position to help you incorporate legacy systems with a broad range of newer services.

Only Newbridge ships high-performance ATM switches today with all the interfaces you need, including Ethernet, LATM, T1, T3, OC3 and video. So you can benefit immediately from ATM without adding expensive interfaces to every router, hub, workstation and PC. You can leverage existing equipment on a new ATM backbone, providing seamless coexistence with traditional circuit switching, frame relay, and other broadband technologies.

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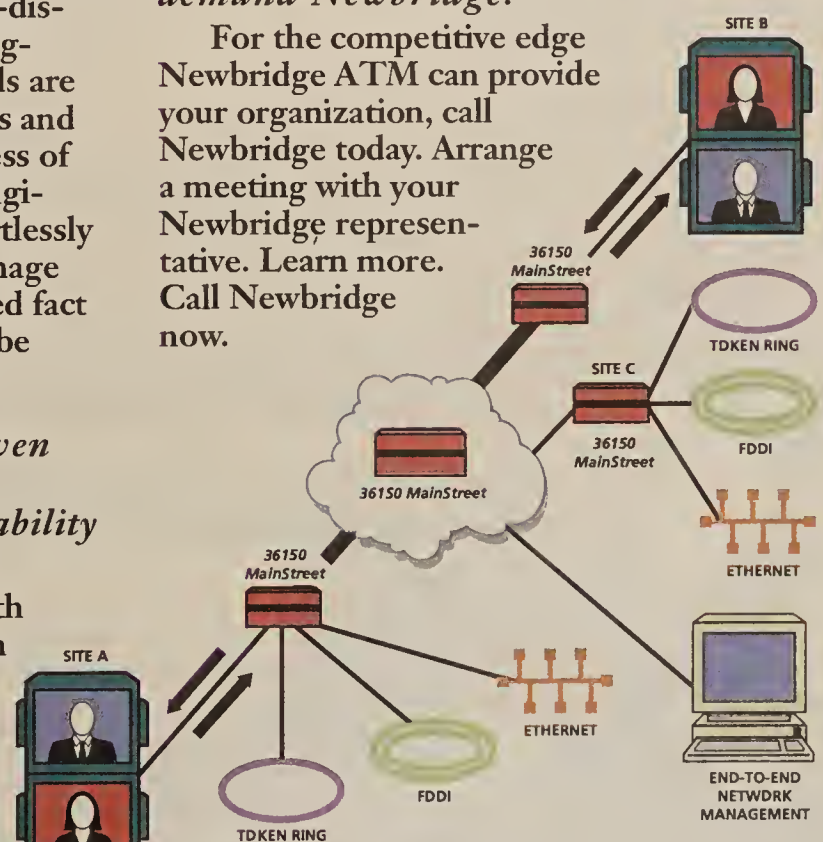
From the design and development of high-quality, reliable products to a common network management solution to the highest quality global service and support, Newbridge is committed to delivering total customer satisfaction. That's why, in over 70 countries, more than 100 telephone companies and in excess of 10,000 other customers rely on Newbridge.

Demand the best; demand Newbridge.

For the competitive edge Newbridge ATM can provide your organization, call Newbridge today. Arrange a meeting with your Newbridge representative. Learn more. Call Newbridge now.



NEWBRIDGE

In the Americas, 1 800 343-3600 or 1 703 834-3600 | Europe, Middle East and Africa, 44 (0) 633 413600 | Asia, Pacific Rim and Russia, 1 613 591-3600.

AppWare

Continued from page 1

plication development tool designed to help in-house corporate developers and power users quickly and easily create custom applications.

The product's ease of use comes from ALMs, prepackaged blocks of code. Because ALMs are represented graphically on the Visual AppBuilder screen, the developer need only "drag and drop" icons and fill in some variables to create applications that employ different services.

For example, with the ODBC, Tuxedo and NDS ALMs Novell plans to deliver in May, developers will be able to build applications and add connectivity to ODBC-compliant databases, NetWare 4 directory service and transaction processing services — all without writing a single line of code.

Last week, Novell announced it plans to develop ALMs with AT&T based on Telephony Services for NetWare. These will let developers more easily tie their applications into a private branch exchange, for example.

In addition, Eastman Kodak said it plans to create ALMs to ease access to NetWare imaging services, Cheyenne Software, Inc. said it will create ALMs to help access storage management services, and both Attachmate and Wall Data, Inc. said they will create ALMs to ease LAN-to-host connectivity.

Within the AppWare model, these ALMs work together using the AppWare Bus, which — like a hardware bus — allows the different ALMs to interoperate and function together within a cohesive application.

The third component, the AppWare Foundation, is a "super" API to different operating systems that ensures applications portability.

In May, Novell will ship AppWare Foundation versions for UnixWare, Apple Computer, Inc.'s Macintosh, Hewlett-Packard Co.'s HP-UX, Windows and Sun Microsystems, Inc.'s SUNOS environments. Novell said it plans to add support for Windows NT, Chicago, OS/2 and IBM's AIX by year end.

LONG ROAD AHEAD

Sources agreed AppWare offers promise and could ultimately provide an ideal development platform. At this point, however, the product is still too new, misunderstood and disjointed to make users and independent software vendors stop and take notice.

The different components of AppWare were from different companies, and Novell still has a long road ahead in not only integrating the different pieces, but also integrating the pieces better into NetWare.

"Novell's strategy cobbles together disparate pieces of software," said Don DePalma, senior analyst at Forrester Research, Inc., Cambridge, Mass. "Now that it has anointed this motley collection, Novell will spend the next year trying to make it all behave."

Integration with NetWare is a chief concern, as the ALMs slated for May delivery are the only ones announced that will provide networking functions. Even simple file and print services are listed as "in development" in Novell documentation, with no delivery dates.

One networking official in a large insurance company in the Hartford, Conn.-area said although he was impressed with the Visual AppBuilder tool, "Novell will have to come up with a more complete integrated package of components before we will consider implementing AppWare."

"It's a great concept; it's just not here yet," agreed Vern Tepe, president of Universal Networks, Inc., a Novell platinum reseller based in Elmhurst, Ill.

Novell off-loads database products to start-up firm

BY CARYN GILLOOLY

Austin, Texas

Novell, Inc. is officially out of the database business.

The company announced last week it has transferred ownership of all its database products — Btrieve, NetWare SQL, Xtrieve and XQL — to a start-up company called Btrieve Technologies, Inc. that will take over development and support for the products.

Users and analysts reacted to the news with concern, given the large installed base of applications that use information stored in Btrieve, a flat-file database that comes bundled with NetWare. They were afraid that they and their applications could be left out in the cold.

"There are too many damn applications that go to Btrieve," said one analyst requesting anonymity who feared that Novell would stop packaging Btrieve in future NetWare releases. "It's not the database of champions, but it's a damn fast record manager."

But Novell was quick to assure customers it will continue to ship Btrieve with existing and future versions of NetWare.

"When we first acquired [Btrieve in 1987], there were no leading databases in the LAN environment," said Richard King, executive vice president of Novell's NetWare Systems Group in Provo, Utah. But as more database vendors look to port their products to NetWare, putting further development into a Novell-owned database is a conflict of interest, he said.

Btrieve Technologies, which consists primarily of former Novell employees and is owned partly by Novell, plans to expand and speed development of Btrieve and the other products, said Ron Harris, president and chief executive officer of the start-up.

The company plans to port Btrieve — which runs on NetWare, DOS, Windows and OS/2 — to Windows NT, Unix another platforms.

Apple ditches net products to trim expenses

BY CARYN GILLOOLY

Cupertino, Calif.

Apple Computer, Inc.'s Apple Business Systems group last week off-loaded two "nonstrategic" networking products in a cost-cutting move that will enable the company to focus on its newer server business.

The firm has agreed to license its Data Access Language (DAL) technology to Independence Technologies, Inc. (ITI), a Fremont, Calif.-based middleware vendor that will assume DAL's development and marketing. As part of the agreement, Apple will acquire a minority stake in ITI.

Apple also last week licensed its SNAps IBM connectivity software to Wall Data, Inc., a Redmond, Wash.-based company specializing in host connectivity software. As in the ITI agreement, Wall Data will assume development, marketing and sales responsibility of the SNAps line, although no equity investment was involved.

REASON BEHIND IT ALL

Analysts said the moves stem from financial pressure squeezing Apple. Revenues for the quarter ended Dec. 31, 1993, increased 23% to $2.47 billion, but earnings fell a whopping 75% to $40 million from $161.3 million for the same quarter last year.

But others contended that Apple was simply getting rid of extra baggage that is no longer strategic to the company's business. DAL is middleware software that provides access to a variety of back-end databases from a variety of front-end database access products. SNAps is software that lets Macintosh users connect to IBM mainframe and mid-range systems to access and run 3270-, 5250- and Advanced Program-to-Program Communications-based applications.

Both these products were important to Apple when the company thought it had to provide all the hardware, software and networking components itself, according to analysts. But Apple is now taking a different tack, seeking partnerships instead of going it alone.

"ITI is already in the middleware business," said Morris Taradalsky, vice president and general manager for ABS, based here. "They have strong expertise and a business model built around making middleware successful. Wall Data is a leader in IBM terminal-emulation products today. They also have strong product expertise, channels and marketing to grow the SNAps business."

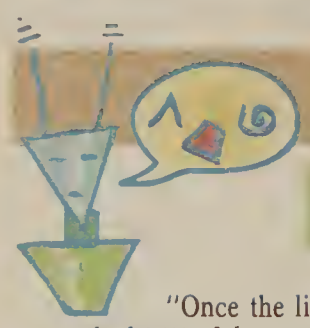
Lynn Welge, manager of development services at ABS, added, "We wanted to be able to increase our focus on servers and the network services that run on those servers, like file, print, remote access."

Despite the potential for upheaval and uncertainty, users and analysts were positive about the transfers.

"Apple's clearly shedding its encumbrances," said Roy Shulte, vice president of software management strategies at Gartner Group, Inc., a research firm in Stamford, Conn. "It's good that they're no longer spending management attention on products that are not strategic to their line of business."

And customers seemed far from furious. "My initial impression was concern," said Mark Showers, project planning manager for Monsanto Research Computing Consortium, a DAL user based in St. Louis. "You get concerned if something you base your infrastructure on changes hands."

But Showers said this change will provide a focus that had been lacking.



CyberSpeak: *Voices from the reader network*

The L.A. earthquake and the deep freeze in other parts of the U.S. have done massive damage. How did your net stand up to Mother Nature?

"Once the lights came back on, we had 95% of the system back up and running in no time."

A spokesman, Sunkist Growers Inc., Sherman Oaks, Calif.

"Digital's global network, which ties together over 80,000 DECnet systems and over 20,000 TCP/IP systems with multiple links to the Internet, is running just fine. It was minus 27 degrees this morning, and I logged in from home to read mail while my car warmed up. Since coming to the office this morning, I accessed the corporate price file in another state, ordered some marketing literature samples and sent mail to people in England, South America and to you. Behind the scenes, there may be some folks scrambling, but I sure haven't seen any evidence of it."

Bill Gassman, product marketing manager, Polycenter Network Management, Digital Equipment Corp., Nashua, N.H.

"I got through to my friends in Southern California during the earthquake using the Internet. I certainly didn't reach them via voice phone."

Dr. Donald Lindberg, director, National Coordination Office for High-Performance Computing and Communications, National Library of Medicine, Washington, D.C.

"These are the most important things we learned from the earthquake: Equipment on rollers didn't fall over — our PC servers mounted on racks with rollers didn't fall off; despite common sense, it may not be wise to screw down or slide-lock AUI cables and serial cables if you can avoid it — some of our worst damage came from serial cables that ripped the serial ports off one of our minis; store your micros under your desk — your desk will shield your CPU from falling books and manuals; and label all your cables clearly — don't just number them, and be descriptive.

Wulf Losee, network analyst, J. Paul Getty Trust, Santa Monica, Calif.

NextWeek CyberSpeak Out!

Which technology — ATM, SMDS or frame relay — do you think will win the high-speed services battle? Why?

Responses must be registered by 5 p.m. Thursday, Feb. 3

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Intel

Continued from page 4

ant rollabout and room-based systems from vendors such as Compression Labs, Inc. and GPT Video Systems, Inc.

From the demonstration of ProShare Video System 200 at ComNet, Intel's proprietary video compression algorithm, Indeo, does not appear to offer improvements in image reproduction over either the TSS standard or other proprietary algorithms.

The Intel videoconferencing system obtains only 15 frame/sec maximum, delivering a more jerky image than more powerful 30 frame/sec systems. And it supports only a one-quarter screen image, rather than a full screen.

As videoconferencing becomes more entwined with document-sharing, the need for new standards is growing so different vendor's video products can share files. But Intel and its partners appear ready to rewrite the book on standards. "Intel may be on a collision course with the TSS," Earon noted.

"Intel may be on a collision course with the TSS," Earon noted.

Although an international Multipoint Control Unit (MCU) standard for bridging three or more videoconferencing users already exists and has been widely implemented, VideoServer, Inc. last week said it will develop a multipoint product by midyear specifically for the Intel Personal Conferencing product line. VideoServer said it will market an MCU bridge that supports H.320 and the proprietary Intel specification.

DOCUMENT SHARING

The ProShare Video System 200 comes with an application called ProShare Standard Edition, which will let two users simultaneously view a document, such as a spreadsheet, they wish to edit. Based on Microsoft's Object Linking and Embedding 1.0 specification, the Intel ProShare software allows the two users to annotate the document with an electronic crayon.

Intel will market the software separately from the videoconferencing kit through its value-added resellers at a cost of $99.

A free software upgrade, called ProShare Premiere Edition, will ship in the second quarter for $299 and will let both users — not just one — store the changes to the edited document.

"Whether it be a legal document or a design, we can mark it up and do that from PC screen to PC screen," said Andrew Grove, president and chief executive officer of Intel, who kicked off the product introduction at ComNet here.

The ProShare software, used separately, will work over a local-area network or an Integrated Services Digital Network Basic Rate Interface line.

While some users are adopting a wait-and-see approach to the ProShare announcement, the smooth integration of the ProShare software and the videoconferencing functionality, in addition to the low cost, generated interest among others.

"We'd like to try it out," said Jan Scites, president of customer services at Connecticut Mutual Life Insurance Co. "We've talked about using others, but this one looks more integrated."

Sybase

Continued from page 6

sells a related mainframe-based software product called Access Server.

Sybase's acquisition of MDI should result in Sybase users gaining easier access to multiple vendors' databases, especially legacy databases. While Sybase officials declined to say exactly how MDI's product line will be integrated with Sybase's offerings, they said it is likely that MDI's gateway services would be used in Sybase's OmniSQL gateway.

Analysts said the acquisition makes sense for Sybase, given that users increasingly are asking for better database connectivity.

"The merger will better equip Sybase to meet the needs of their large corporate users who must build enterprise application systems supporting database systems from more than one vendor," said Richard Finkelstein, president of Performance Computing, Inc., a consulting firm in Chicago.

Under the acquisition plan, MDI will stay in Boulder, Colo., as a separate business entity of Sybase. MDI President Mike Forster will report directly to Epstein.

The Sybase/MDI merger

	Sybase, Inc.	Micro Decisionware, Inc.
Based	Emeryville, Calif.	Boulder, Colo.
1993 revenue	$427 million	$17 million
Employees	2,000	105
Founded	1984	1980
Product focus	Client/server-based relational database systems	Database gateways
Primary products	SQL Server, Open Client, Open Server, OmniSQL	Database Gateway, Access Server

GRAPHIC BY SUSAN J. CHAMPENY

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1) The Deskpro XE has preinstalled software to get you up and running quickly. 2) It's plug and
helps you better organize your work. 4) Enhanced Business Audio lets you operate the PC with you

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COMPAQ

QUALITY

Is the difference between a low-cost modem and a cheap one

In today's datacomm hardware market, finding a low-priced modem isn't too much of a trick. The tough part is finding one that you can recommend to your customers without getting them — and yourself — in trouble.

How do you tell the difference between a low-cost modem and a cheap one?

Begin by selecting a supplier who has a world-wide reputation for commitment to quality. Motorola, for instance. Then look for a long history of leadership in modem design and manufacture and an industry-leading capability for ongoing product support. Like Motorola UDS.

Finally, take a long, hard look at actual product performance. Pay particular attention to the way a modem behaves when the quality of the telephone line deteriorates. This will tell you whether you're dealing with a low-cost modem...or a cheap one.

PRICED AT JUST $239,
the new UDS FasTalk II is today's outstanding value in quality datacomm hardware. With full V.32 bis and V.42 bis compliance and FAX capability, is a top performer, even over substandard lines.

Even the cheapest modems on the market can claim at least nominal compliance with CCITT standards, but this is not enough: when you specify modem, your reputation rides on its real-world performance.

The new FasTalk II™ is the ideal resellers' solution. It is fully compliant with V.32 bis and V.42 bis; it supports synchronous or asynchronous operation over dial-up or leased lines, it includes Group III FAX capability, and it lives up to the Motorola UDS reputation for outstanding performance, particularly over bad telephone lines. And its price is very, very competitive.

For full details, contact Motorola UDS today!

800-451-2369

MOTOROLA
UDS

BRIEFS

Hewlett-Packard Co. last week brought out a new release of its Open Systems Interconnection-based network management system and announced two agreements involving its Simple Network Management Protocol platform.

Version 4.0 of HP's **OSI-based OpenView Distributed Management Platform** includes the **X/Open Management Protocol (XMP)** application program interface, which lets users develop applications that can manage devices using SNMP or the Common Management Information Protocol.

HP also announced that **SynOptics Communications, Inc.** has ported its **Optivity** hub management software to **OpenView,** allowing users to monitor and control virtual local nets comprised of SynOptics hubs from an OpenView console.

And HP disclosed that **Boole & Babbage, Inc.,** makers of the **Command/Post** enterprise management system, is now authorized to market OpenView. Boole & Babbage will offer OpenView to Command/Post customers as an SNMP element manager.

OpenView Distributed Management Platform 4.0 costs $10,000.

HP: (800) 752-0900.

FastComm Communications Corp. last week announced a joint marketing relationship with Telebit Corp. for frame relay equipment.

For $3,000, users can purchase a local-area network internetworking system that includes Telebit's NetBlazer router and FastComm's Mono-FRAD packet assembler/disassembler, FastComm said. The two products will allow users to route Transmission Control Protocol/Internet Protocol, Internetwork Packet Echange (IPX) and AppleTalk traffic over public or private frame relay links at 56K to 128K bit/sec.

Telebit distributors and FastComm direct sales representatives will offer the system in February.

FastComm: (800) 521-2496; Telebit: (800) 835-3248.

Digital Link Corp. last week introduced **a multiplexing data service unit** that connects multiple internetworking devices to **E-1 or fractional E-1** nets.

The DL600 Encore provides two or four data terminal equipment ports that support X.21, V.35 or RS-449 interfaces. Data rates for each port are software-configurable from 64K to 1.984M bit/sec.

The DL600 also provides an optional E-1 drop-and-insert port that can be provisioned to connect Nx64K bit/sec channels from an E-1 PBX to the network port.

The DL600 is available now and pricing starts at $3,895.

Digital Link: (408) 745-6200.

Larsecom, Inc. last week added Simple Network Management Protocol agent support to its Mega-T T-1 inverse multiplexer, Access-T45 DS3 unit and its Access-T data service unit/channel service unit product lines.

The SNMP agent is available for free to existing customers and will be included in future releases of Larsecom's products beginning in the first quarter.

Larsecom: (408) 988-6600.

HP bulks up distributed computing software for mission-critical service

Additions are intended to make OSF DCE enterprise-ready.

BY JIM DUFFY

Palo Alto, Calif.

Hewlett-Packard Co. last week moved to ruggedize its Distributed Computing Environment (DCE) software for mission-critical transaction processing by adding extensions that enable it to employ more net resources, including IBM mainframes.

HP added a gateway that lets its Encina/9000 transaction processing monitor work with IBM Systems Network Architecture mainframe-based applications. The company also rolled out new distributed file system and global directory features for HP DCE/9000, the core DCE software for HP 9000 workstations and servers.

"These are exactly the things users need to help make DCE real in their environments," said David Chappell, principal of Chappell & Associates, a distributed computing consultancy based in Minneapolis.

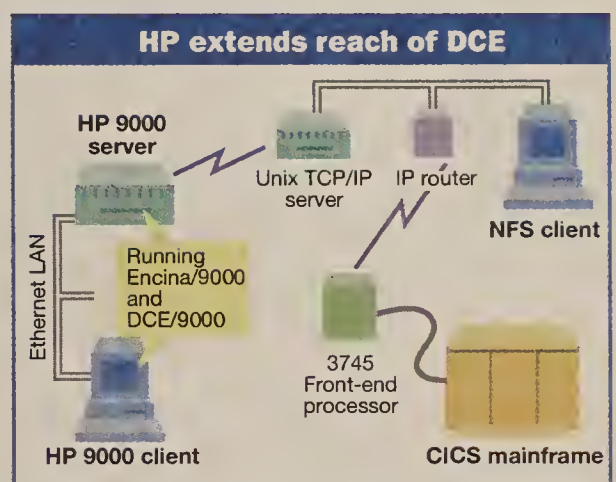
The Open Software Foundation, Inc.'s DCE code is intended to let users build distributed applications that run on machines from different vendors. It includes a remote procedure call for executing tasks on multiple processors, threads for running several routines simultaneously, a cell directory service, a time service and security services.

HP's Encina/9000 could already monitor transactions across multiple Unix-based machines, but the new PPC gateway allows IBM SNA mainframes to participate in transactions with Encina clients and servers on Transmission Control Protocol/Internet Protocol networks.

The PPC gateway is said to establish peer-to-peer communications, using IBM's LU 6.2 session type, between HP 9000 systems running Encina and mainframe-based transaction processing monitors such as CICS. The gateway lets Encina work with its mainframe-based counterpart to coordinate transactions that may use any mix of mainframe and Unix-based resources.

Another enhancement to Encina/9000 is a feature called Recoverable Queuing Service (RQS). RQS maintains the queuing sequences of transactions even in the event

See **HP,** *page 17*



Enhancements to HP's DCE/9000 and Encina/9000 software enable Network File System (NFS) users to access Distributed Computing Environment (DCE) files and IBM mainframes to participate in DCE transaction processing environments.

SOURCE: HEWLETT-PACKARD CO., PALO ALTO, CALIF.

DECNET

DEC enhances interoperability, management with latest router

BY JIM DUFFY

Maynard, Mass.

As part of its client/server barrage coming next month, Digital Equipment Corp. will announce U.S. availability of the latest version of its high-end backbone router that includes new interoperability and net management features.

Among the enhancements of DECNIS Version 2.3, which was announced late last year in Europe, will be support for the Open Shortest Path First (OSPF) routing protocol, improved performance, enhanced interoperability with Cisco Systems, Inc. routers and extended Simple Network Management Protocol-based management.

DECNIS is a multiprotocol bridging router and X.25 gateway that supports Integrated Intermediate System-to-Intermediate System, the Routing Information Protocol and, with this release, OSPF routing protocols. It routes Transmission Control Protocol/Internet Protocol, DECnet Phase IV, DECnet/OSI, Novell, Inc. Internetwork Packet Exchange (IPX) and Apple Computer, Inc. AppleTalk packets.

DECNIS Version 2.3 supports...

- **Open Shortest Path First routing protocol**
- **Alpha and PC load hosts**
- **SNMP SETS and TRAPS**

Support for OSPF will allow DECNIS to interoperate with non-DEC IP routers that also support the protocol, including products from Cisco, Proteon, Inc. and Wellfleet Communications, Inc.

OSPF is based on a link-state routing algorithm that will allow DECNIS routers to pick the least cost route between sending and receiving locations.

DEC was supposed to ship OSPF on DECNIS a year ago with Version 2.1 (*NW,* Nov. 9, 1992, page 21).

"Engineering constantly reprioritizes, and OSPF just ended up being one of those things that [was not] as important as everything else," said Elaine Hodgdon, a product marketing consultant at DEC.

"Engineering constantly reprioritizes, and OSPF just ended up being on of those things that [was not] as important as everything else."

On the performance front, DECNIS 2.3 can now route 83,000 64-byte Novell IPX packet/sec with no packet loss, according to Hodgdon. This compares to 300 IPX packet/sec with previous DECNIS versions.

DECNIS still routes 64-byte IP packets at 80K packet/sec, and 64-byte Ethernet packets at 14.4K packet/sec, Hodgdon said.

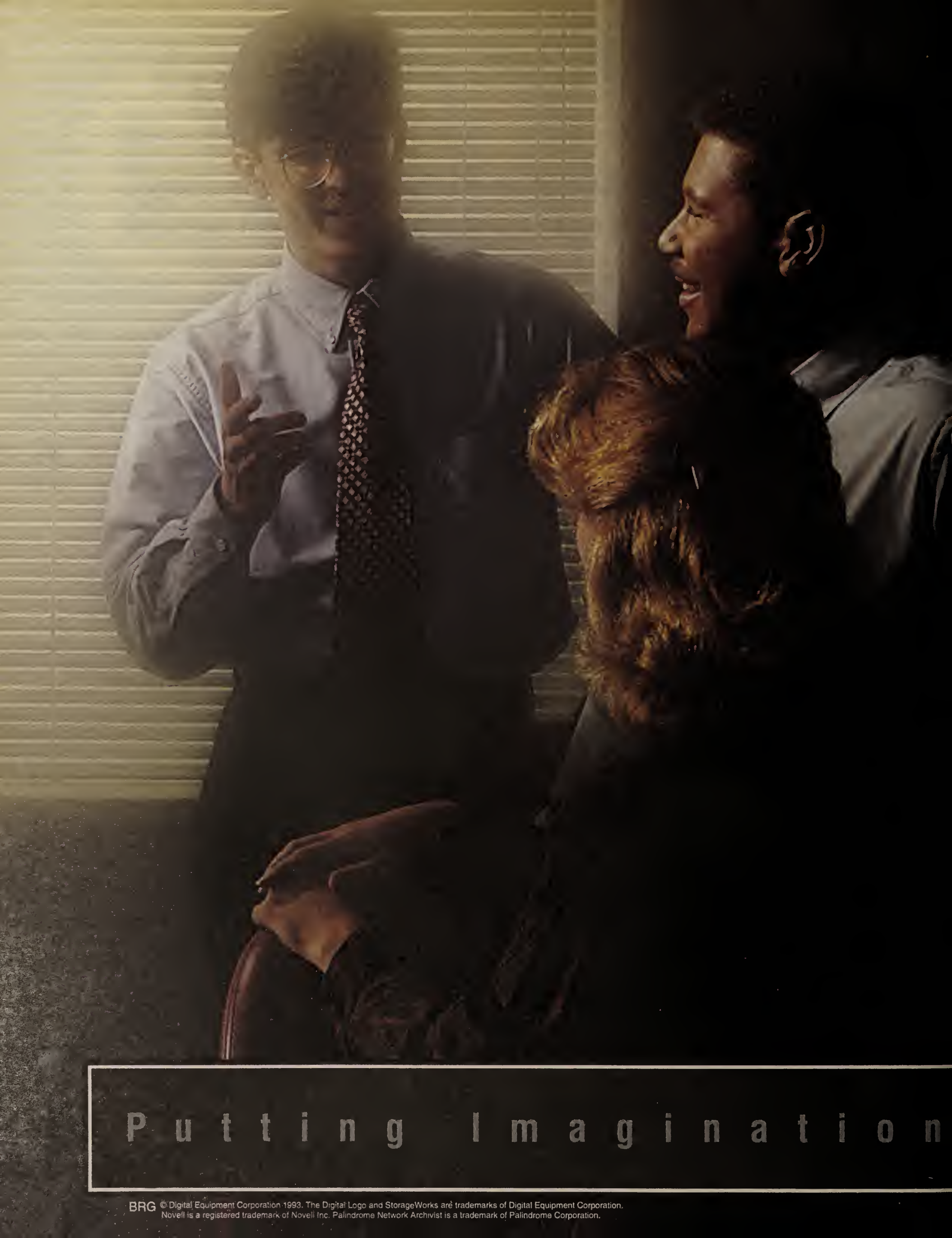
To configure a DECNIS 2.3 router, users can now download software from personal computers and DEC OSF/1 AXP- and OpenVMS AXP-based Alpha systems. Users can also still employ VMS- and Ultrix-based systems to load DECNIS routers.

For enhanced interoperability with Cisco routers, DECNIS 2.3 supports Cisco's High-Level Data Link Control protocol. This gives users the option of encapsulating data in HDLC packets and routing them using a combination of Cisco and DECNIS routers.

Lastly, DECNIS 2.3 adds support for SNMP SETS and TRAPS to its existing GET function. This enables DECNIS routers to send alerts to an SNMP console when a significant event occurs or threshold is reached. It also lets network managers control and change management variables on DECNIS routers.

DECNIS 2.3 will be available in March. It costs $2,000 for an initial license, while upgrades are priced at $320.

✆DEC: (800) 344-4825.



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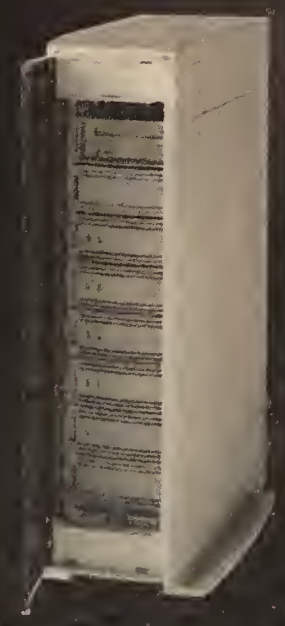

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WAITING FOR ATM COULD BE A PAINFULLY SLOW EXPERIENCE.

Security Dynamics upgrades user authentication package

ACE/Server supports Kerberos, FTP and Solaris platform.

BY ELLEN MESSMER

Cambridge, Mass.

Security Dynamics, Inc. last week announced upgrades to its user authentication system that will allow it to protect data files accessed through the TCP/IP standard File Transfer Protocol (FTP).

While the firm's existing ACE/Server software protects against unauthorized entry into corporate network servers, the new version also secures specific data files by requiring the SecurID Card be used to receive authorization for file transfer.

ACE/Server protects against unauthorized network access by requiring the user to enter a personal identification number (PIN) or password to the communications servers, said James Geary, vice president of marketing and international sales at Security Dynamics. It then asks for the six-digit code generated by the user's SecurID Card, a code that changes every 60 seconds. That information is sent to the ACE/Server, which verifies the PIN and authorization code.

If both pieces of the information are correct, the user is allowed access to the network.

With Version 1.2.1 of ACE/Server, scheduled to ship this month, the same system can be used to protect specific files against unauthorized access via FTP. Net managers can dictate which users should be allowed access to any given file.

In another enhancement, ACE/Server can be used along with the Open Computing Security Group, Inc. Kerberos software for added network protection. Kerberos authentication servers control the user's network access, while providing "tickets" that grant access to specific servers on the network.

Firms that want to make database resources available to authorized users both within and outside the company are finding the Security Dynamics product to be effective.

Northern Telecom, Inc., for example, has equipped about 3,000 employees, contractors and customers with SecurID Cards so authorized individuals can share information.

"We have marketing systems for customers to access information or order equipment," said Sandy Thom, senior manager of systems security for the company. Northern Telecom gives SecurID Cards to customers so they can have remote access to communications gateways.

The company also uses ACE/Server to guard sensitive marketing and payroll data.

The firm is now considering whether to deploy the Security Dynamics software throughout its entire enterprise and equip all its employees with SecurID cards, Thom said.

The enhanced ACE/Server software will start at $1,950.

✆Security Dynamics: (617) 547-7820.

ACE/Server enhancements

- Protects files against unauthorized File Transfer Protocol access.
- Supports the Open Computing Security Group, Inc. version of Kerberos.
- Supports Sun Microsystems, Inc. Solaris in addition to existing versions of Unix, which include:
  - Sun SunOS
  - Digital Equipment Corp. Ultrix
  - IBM AIX
  - Hewlett-Packard Co. HP-UX
  - Silicon Graphics, Inc. Irix
  - Motorola, Inc. System V/88 platform

HP

Continued from page 13

of a system crash or media failure to maintain data integrity.

RQS also enhances application performance for certain tasks, HP said, by allowing client workstations to execute other tasks while waiting for confirmation that transaction requests will be carried out. Usually, workstations cannot initiate another task until they receive that confirmation.

Additions to DCE/9000, meanwhile, include a distributed file system based on Transarc Corp.'s Andrew File System, which is said to allow users transparent access to files and data across a DCE network. It does this through a uniform file name space that's integrated with DCE directory services, including DCE/9000's new global directory service.

The global directory service, which conforms to the X.500 directory service standard, provides a uniform naming and addressing scheme for DCE clients and servers. It allows users to establish communications with resources that may reside on remote DCE cells, or subnetworks.

HP also came out with a file system gateway that allows users of Sun Microsystems, Inc.'s popular Unix-based Network File System (NFS) to access DCE data. This capability is intended to preserve investments in NFS files and data as users migrate to DCE and the DCE file system.

"This is key because of the proliferation of Unixes," said Psvi Gal, vice president of information technology at Wells Fargo Bank in San Francisco. "Until there is a unified Unix, we have to find other ways to make them talk to each other."

For assistance in establishing and reconfiguring DCE cells, HP is bundling new Configuration Manager software with DCE/9000. It includes a template function that analyzes planned DCE configurations for possible problems. This allows network administrators to plan and validate new DCE configurations before actually reconfiguring the network.

Configuration Manager also helps identify and troubleshoot problems with existing DCE configurations through a validation tool that ensures successful implementation of a DCE cell.

"DCE's weakness thus far has been management. Tools like this are a welcome development," Chappell said.

HP plans to integrate Configuration Manager with its OpenView network and systems management platform.

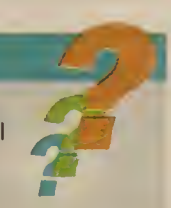
Encina/9000 PPC gateway starts at $3,900. The Encina/9000 RQS starts at $2,900. Both enhancements will be available in April.

DCE/9000's distributed file system starts at $1,800, while the NFS gateway starts at $2,000. The global directory service starts at $3,100. All features will be available in February.

✆HP: (800) 752-0900.

Comments

To comment on this or any article, drop us a fax at (508) 820-3467, call (800) 622-1108, Ext. 487, or message us via Internet at network@world.std.com.



THE INTERNET

by Ed Krol

Going to Disney on the info superhighway

I just returned from a regular family trip to Disney World in Orlando, Fla., amazed, as always, but a bit disappointed. I am amazed somewhat for the illusion that is produced but more for the technology that creates the illusion.

I enjoy sitting in the first or last vehicle of a group so I can watch the tracks and peek behind things where you are not supposed to look. I think about things like, Are these cars independently controlled or centrally controlled? Are the things that happen around you synchronous or event-triggered? What information would you have to send to the controlling computers about the vehicle and all the other movable parts to make the magic?

All of these questions are interesting puzzles that can frequently be solved by thinking about the ramifications of the various engineering decisions and riding repeatedly to gain needed data. The data gathering can be as much fun as solving the puzzles.

The disappointments come mainly in Futureworld, the northern end of EPCOT center, where you are supposed to get a glimpse into the future. A building called Communicore West holds an exhibit about the future of communications and touts itself as being on-line.

Unfortunately, on-line is used in the '70s sense of being able to put your hands on a computer. When we first went 10 years ago, the room was mobbed with kids laying their hands on neat stuff for the first time. This time, the room was relatively deserted, I presume because the average kid can do stuff just as neat at school or by playing Nintendo without having to waste a Disney day on it.

I started to think about how things that happen every day on the Internet are more spectacular than the displays there now — how, using a reasonable Internet connection and a set of $2,500 workstations, you could do a multimedia presentation better than Futureworld's. You could even have visitors to Disneyland and Disney World do a slow-speed videoconference over the net. And if you ignore the delay of building the gear into fancy guest-proof mountings, you could probably do it in an afternoon.

The next logical question for me was, what would the Internet's reaction be to this? It would be commercial Internet use at its tacky worst. Would it be legal use of the Internet? Sure, any number of Internet providers would be happy to sell Disney a T-1 connection to each park. But would it be good use of the Internet?

I think the initial consensus would be no mainly because people who are on the net have things they like to do there. This and other uses like it could interfere quite a bit with current uses.

However, if they want Internet technology to be the basis for a future information utility, what better way to show people what it can do than to put a couple of nice resources on-line in a fun setting and let them play? It would probably do more to help people visualize the information superhighway than a whole year's worth of speeches by Al Gore.

The only negative aspect of the idea would be the effect it might have on volunteer resource providers. What if one of the demonstrations was of the Dinosaur Museum at the Honolulu Community College? That's a great World Wide Web resource with pictures of dinosaur skeletons, audio commentary and textual descriptions of the collection.

The whole resource, however, is sitting on the end of a rather skinny communications line in the middle of the Pacific Ocean. What if the line became clogged by someone using this free resource to make a buck, and the rest of the real users at the college couldn't do their work?

I hope the answer is for the companies making a buck on the net to be environmentally aware. That is, if they use resources, it is in their best interest to keep them responsive. This may be a naive view of it, but I hope we don't have to resort to a net superfund based on the chemical industry's model.

What better way of realizing Walt's dream? His dream was to capture in Florida the culture of different countries and show that they could coexist in harmony there. Why not have it be the place where people can actually visit other countries electronically?

Through the technology, I can certainly see Morocco, hear Morocco or even listen to a native explain why lamb couscous is traditionally served, but until Scotty and Mr. Spock perfect the Internet beaming protocol, being there is still the only way to taste and smell it.

➵ Krol is author of The Whole Internet (O'Reilly & Associates, Sebastopol, Calif., 1992) and assistant director for LAN deployment at the University of Illinois at Urbana-Champaign. He can be reached at e-krol@uiuc.edu.

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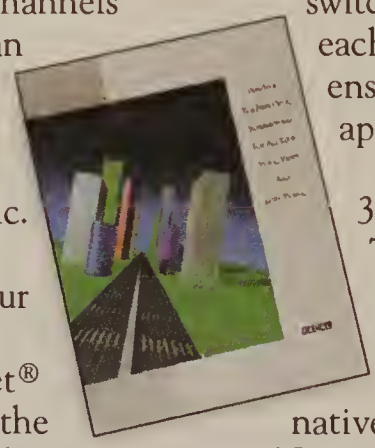

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BRIEFS

Xyplex, Inc. of Boxborough, Mass., has added support for Apple Computer, Inc.'s **AppleTalk Remote Access Protocol (ARAP)** to its line of stand-alone and hub-based remote access servers. Available now, the ARAP support costs $395.

Separately, Xyplex will add support for Novell, Inc.'s **Internetwork Packet Exchange (IPX)** protocol to its remote access servers by midyear. In the second half of 1994, Xyplex also will deliver a series of modules for its Network 9000 Routing Hub that offer connections for clear-channel T-1/E-1, fractional T-1/E-1, switched 56K bit/sec and Integrated Services Digital Network Primary Rate Interface and Basic Rate Interface services.

Xyplex: (508) 264-9900.

Clovis, Inc. of Littleton, Mass., last week changed the name of its flagship Intellistor **storage management** product to MultiStor. MultiStor is a hardware and software combination that pulls all storage and backup processes down from a file server on a local-area network to a stand-alone multiple storage device subsystem. MultiStor works independently of the network operating system using standard Small Computer System Interface connections and can simultaneously support a mix of hard drives, tape, optical, CD-ROM and Redundant Array of Inexpensive Disks (RAID).

Clovis: (508) 486-4367.

Network General Corp., a vendor of **network analysis** products in Menlo Park, Calif., has enhanced its Distributed Sniffer System (DSS) by integrating it with network management platforms from Hewlett-Packard Co., Novell, Inc. and SunConnect. That support will be available next month. Also, Network General added support for Apple Computer, Inc.'s AppleTalk protocol to its Expert Analysis application.

Network General: (415) 473-2000.

IBM has established the **IBM PC Co. — Servers** business unit to focus on developing network servers. The business unit's mission is the continued development of IBM's current Personal System/2 85, 95, 195 and 295 server lines. The unit will be headed by General Manager Michael Coleman, previously vice president of marketing and brand management at IBM PC Co.

IBM: (800) 426-2468.

Hummingbird Communications, Ltd. of Markham, Ontario, last week shipped eXceed/OS/2 connectivity software that allows IBM OS/2 personal computers to connect to and display applications from X Window System-based computers. The software sits on a PC running OS/2 2.X and lets end users cut and paste data between resident DOS, Windows and OS/2 applications and Unix, MVS and X Window System applications. Although the latter applications are actually running on the host systems, they can be run via Windows on a PC.

The eXceed/OS/2 software is available now for $545.

Hummingbird: (905) 470-1203.

Banyan extends ENS to HP platform

BY CHRISTINE BURNS

Westborough, Mass.

Banyan Systems, Inc. and Hewlett-Packard Co. last week announced Enterprise Network Services (ENS) for HP-UX, a suite of network services from Banyan designed to let PC LAN and Unix workstation users coexist on enterprise nets.

ENS for HP-UX is software that will let personal computer-based local-area network users and those using HP-UX workstations share files and printers, use a common directory, exchange electronic mail and access the same applications regardless of where they reside on a corporate network. In addition, the software will let network managers administer passwords and security for an entire network from a central site.

Banyan's basic ENS package comprises StreetTalk III directory and StreetTalk Directory Assistance services, security, messaging, network management, and file- and print-sharing facilities.

Previously, Banyan has only offered these services on its own Unix-based VINES network operating system and as ENS for NetWare, which lets VINES and Novell, Inc. NetWare users on Intel Corp.-based PCs share ENS services.

ENS for HP-UX will reside on HP 9000 Series 800 Precision Architecture-Reduced Instruction Set Computing-based servers running the HP-UX operating system. With the introduction of this product, Banyan, HP and Novell users will all benefit from a con-

See ENS, *page 22*

ENS on the move

While Banyan Systems, Inc. has long-range plans to port its Enterprise Network Services (ENS) to as many platforms as possible, company officials are making the journey one step at a time.

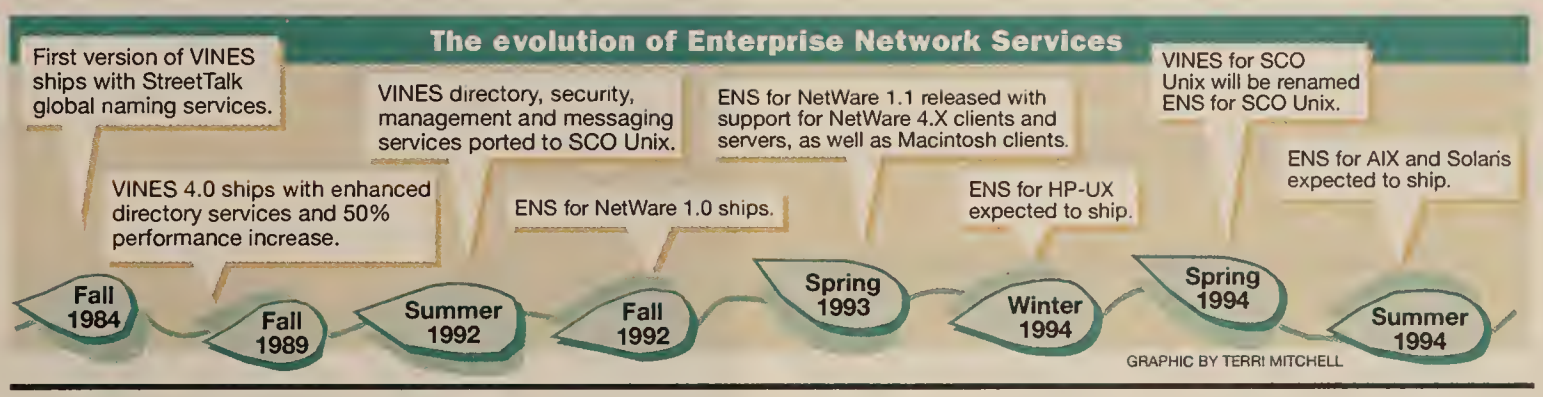
In addition to last week's announcement of ENS for HP-UX, users of Sun Microsystems, Inc.'s Solaris and IBM's AIX operating systems should expect to see ENS on their platforms by midyear, said Bill Johnson, Banyan's vice president of product marketing.

Banyan is negotiating with Microsoft Corp. to implement ENS on its Windows NT platform, Johnson said. Banyan also is working with IBM's LAN Systems Division on another port, but Johnson declined to say if ENS would run on IBM's LAN Server 3.0 net operating system, its OS/2 platform or its future Workplace OS.

Banyan first separated its networking services, which include directory, security, messaging and management, from its VINES NOS in 1992 to run on Novell, Inc. NetWare local-area nets. ENS lets users of disparate LANs exchange electronic mail and share files with clients and servers anywhere on an enterprise network without having to know where they reside.

Banyan also offers similar services on The Santa Cruz Operation, Inc.'s SCO Unix platform called VINES for SCO Unix. Banyan will change that name to ENS for SCO this spring to keep its product names consistent across platforms.

BY CHRISTINE BURNS



Simware to automate NetWare management

BY CARYN GILLOOLY

Ottawa

Simware, Inc. this week will launch a new product designed to help Novell, Inc. NetWare administrators spend less time on individual local network problems so that they can devote more time to enterprise management.

RexxWare is a NetWare Loadable Module (NLM) for NetWare 3.X and 4.X servers that can assist administrators in automating and prescheduling tasks that otherwise would have to be done manually.

"RexxWare will be an important tool for those who manage NetWare LANs," said Keith Fukuhara, president of the San Francisco chapter of the Certified NetWare Engineer (CNE) Professional Association, "It will free up these LAN managers so they can turn their attention to more strategic LAN management issues rather than dealing with the mundane day-to-day operations that can be automated," added Fukuhara, who tested the product.

The product is a superset of the Rexx scripting language, which administrators can use to create macros that instruct programs to run automatically.

RexxWare includes more than 30 sample scripts that can be used out of the box to automate the most common NetWare administration tasks.

The scripts can also be used to build custom management applications and can even be employed for remote server management.

Chris Fedorko, Simware's vice president of marketing, described several scenarios in which RexxWare can be used.

"One CNE had 25 departmental servers and was looking for a way to charge back to each department for line costs," Fedorko explained. "To get that information, he had to log on to each server, log volume statistics, send all the information to a central server, compile it, then transfer the information to a mainframe-based accounting system.

"That entire process can be done automatically by RexxWare," he said.

A second user — Verne Armstrong, systems engineer at Fritz Companies, Inc., an international freight logistics broker in San Francisco — has to manually unload and reload NLMs before and after net backups.

"Right now, many routine jobs like server backups require my personal attention because loaded NLMs lock files and prevent them from being backed up during the night," Armstrong said.

With RexxWare, he said, NLMs can be unloaded automatically before the backup, then reloaded afterward.

RexxWare will be available next month for $695 per copy.

✆Simware: (800) 463-3205.

Managing to lose money

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says Anthony Barber, the manager of technical services for Carter's.

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Networks That Go the Distance™

ENS

Continued from page 19

sistent set of network services.

"The goal is to give users a single system image across as many platforms as possible," said Bill Johnson, Banyan's vice president of product marketing.

ENS for HP-UX will enable HP-UX clients and servers as well as ENS for NetWare users to share files, directories and other services with each other via a single logon, Johnson said. Previously, additional PC-to-Unix communication software and several logons were required for such connectivity.

Matt Cain, a program director at META Group, a consulting firm in Westport, Conn., said the need for a shared directory among Unix and PC users will be a good selling point for ENS for HP-UX.

"Companies are struggling with multitudes of directories within their enterprise nets, and Banyan is delivering one global directory for easy access and administration," Cain said.

Keith Johnson, assistant vice president of information technology at Continental Grain, a worldwide agribusiness company, is running an ENS for HP-UX beta test supporting PC and Unix users at the company's New York headquarters and Chicago offices.

"Easy administration [of the PC and Unix systems] was exactly what we were going after," Johnson said. "We wanted to reduce the complexity and the number of communication products that we were dealing with. This just looks to us like we're working with a single system."

Johnson plans to implement ENS for HP-UX at several Continental Grain offices around the world.

Marty Palka, an analyst with San Jose, Calif., market research firm Dataquest, Inc., said ENS for HP-UX offers some investment protection for systems administrators who want to open up custom-made Unix-based applications to PC users.

"[Users'] HP-UX applications automatically become integrated applications throughout the enterprise" with ENS for HP-UX, Palka said.

Banyan has also partnered with third-party developers to make applications previously reserved for users of expensive, powerful Unix machines available to PC users. The company has worked with Oracle Corp. and Sybase, Inc. to give PC users direct access to database applications from these vendors running on HP servers.

ENS for HP-UX, which includes DOS, Windows and IBM OS/2 client support, will be available by mid-February. It is priced on a per-user basis ranging from $5,495 for a 20-user license to $54,995 for a 1,000-user license. ENS for HP-UX can also be purchased solely as an application server platform for $4,995.

✆Banyan: (508) 898-1000; HP: (800) 752-0900.

WIRING SYSTEMS

Hughes adds low-end hubs to product line

BY SKIP MACASKILL

Washington, D.C.

Hughes LAN Systems, Inc. last week introduced its first stackable hub, an Ethernet wiring system equipped with network management and several other key features of Hughes' high-end chassis-based device.

The Enterprise Stackable Hub 1300, showcased at the ComNet '94 trade show here, will allow net managers to connect Ethernet work groups and departmental local-area networks to the enterprise in cases where a chassis-based hub would be overkill.

"The 1300 offers full-featured hub capabilities but at the price of a stackable hub," said Mark Bosse, product-line manager at Hughes. The price of the Hughes high-end Enterprise Hub's chassis alone costs more than either of the stackable hubs, and the high-end hub's price increases with each module added.

"[The model 1300] complements our 14- and five-slot Enterprise Hub by providing several similar features, including network management, flexible backbone media support, security options, software download and redundant interhub connections," Bosse explained.

The 1300 is available in 12- and 24-port Ethernet models supporting shielded or unshielded twisted-pair connections via standard RJ-45 ports. As many as four hubs can be stacked together, providing support for up to 96 LAN-based users. When stacked, the hubs can be managed as a single logical unit, allowing users to add ports without increasing the number of repeater hops.

Connections to a network backbone can be made via an RJ-45 port or an optional transceiver on the front of the hub that supports 10Base-T, 10Base-FL, 10Base2 and 10Base5 connections. The 12-port hub offers one trans-

See Hubs, *page 28*

For more information on Hughes LAN Systems products and services, complete and return this postage-paid card, call 1(800) 395-5267 or fax (415) 966-7990.

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by Mark Gibbs

Unrecognized net resource

Who runs your network on a day-to-day basis? I mean at the level of basic interaction with end users. Who is it that answers questions about lost files, forgotten passwords and other "How do I ... ?" questions?

In networks supporting more than a few hundred users, this person is usually not the network administrator, but rather a work group manager. These people usually are either casually recruited for the job or fall into it because they find it interesting.

I've recently spoken to a few work group managers, and a couple of issues have arisen.

First, they usually do not have proper training for the job. It typically consists of reading a few manuals and asking the net manager a few questions. Even worse, they often gain expertise only through trial and error.

The other, more important issue that cropped up is that these people often are not formally recognized for this job. If they joined their companies as accountants or office managers, that's what their job descriptions still say. They may be putting in 20 or more hours per week as a work group manager, but it's not what they were hired to do, and they don't get paid for it.

So why do they do it? In part, it is the sheer pleasure of dealing with leading-edge technology — the same reason why most net professionals love their jobs — combined with the thrill of solving problems.

Even better, most of them genuinely enjoy the role of local guru and actually like helping people.

However, one story I heard pointed out a danger of being a work group manager. Fred — not his real name — had been working for MegaCorp — not the real name either — as a senior accounts controller for just under two years when the company started to install neworks in 1989.

Within a month, Fred's PC had a net connection and, because he had a PC at home, he got interested in what was going on. The technical services group was overwhelmed by the scale of the work involved in networking the company, so it was only too glad to have Fred manage the accounts department's daily network needs.

Fred's boss was supportive of his new function because it kept the department's computers running smoothly, and Fred was more than willing to put in the extra effort to do both jobs. When his boss left the firm, Fred carried on as he had been, even though his new boss didn't understand what a work group manager was.

So it went until 1993, when the economic recession started to hit MegaCorp's revenue and profits hard. Fred got a pink slip. His job as a senior accounts controller was seen as expendable. Here was a guy who was giving the company 110%, but his job description only showed him counting beans.

Off he went. The accounts department started complaining that support was terrible, and the technical services group got more bogged down than ever. Everybody lost out.

Fred should have had his job description updated to cover his work group manager functions, and the company — or at least technical services — should have recognized him for his hard work.

The problem is that managing networks takes a lot of time, and if companies aren't funding technical services to do the job properly, something must get sacrificed. That something is usually end-user support.

To make up for the shortfall, those who just want to be involved are recruited and dubbed work group managers. They are then expected to achieve miracles, frequently without training and usually without formal recognition. When a company loses them, it loses an important component of its network services.

If you are a work group manager, make sure that your extra work load is recognized as part of your job. Demand training and recognition.

If you have work group managers, make them a formal part of your networking strategy and ensure that the company recognizes their role. Trained and nurtured, they are an extremely valuable resource.

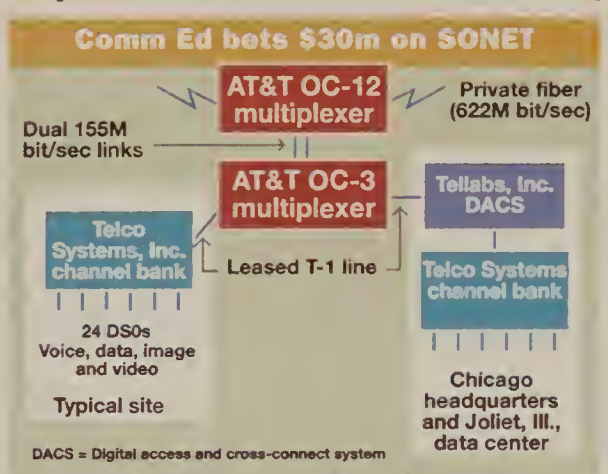
➡ Gibbs is a consultant and writer based in Ventura, Calif. He can be reached at (805) 647-2307 or on the Internet (mgibbs@rain.org).

Comm Ed finds powerful ally in SONET network

BY JOANIE WEXLER

Chicago

Commonwealth Edison Co. (Comm Ed) is investing $30 million in a private SONET network that is expected to pay for itself within six years while helping the company support enhanced services to fend off new competition.



Commonwealth Edison Co. is building a $30 million, 622M bit/sec private SONET network in northern Illinois, using some 25 OC-12 muxes and 40 OC-3 muxes. The network is expected to pay for itself within 5-6 years.

SOURCE: MFS NETWORK TECHNOLOGIES, INC., OMAHA, NEB.
GRAPHIC BY SUSAN J. CHAMPENY

The network will support all Comm Ed's voice, data, image and video traffic, including the internal segment of the utility's 24-hour toll-free customer service lines that feed into five regional call centers. In addition, Comm Ed will leverage the network for special applications, such as its home-grown power control system.

Rather than deploy public Synchronous Optical Network (SONET) services, Comm Ed opted to have systems integrator MFS Network Technologies, Inc. build a 580-mile net with a 622M bit/sec backbone that the utility will ultimately own. MFS beat a competitive bid for tariffed SONET services from local public telephone company Ameritech primarily because of lower network operations costs over time.

The network is scheduled to be completed in about three years, with segments starting to be operational late next year, said Mark Tirio, Comm Ed's director of corporate telecommunications.

Comm Ed's network is intended to help the company keep a step ahead in an era when utilities are facing new competition for large business accounts in the form of independent power producers.

Many utilities — including Northeast Utilities in New England, which is building a private fiber Asynchronous Transfer Mode network — are rising to the occasion in part by revamping their networks to help them deliver more reliable power service and faster customer service.

Comm Ed chose the SONET net largely because it will be more cost-effective to add sites, services and bandwidth compared to a leased-line network, Tirio said. The company currently uses 5,200 leased lines in the upper quarter of Illinois.

Tirio said SONET network bandwidth will end up costing lower than wholesale prices and the net should pay for itself within five to six years after completion.

"Once you make the capital investment in a SONET network, if you continue to have the traffic volumes to justify it, you can incrementally add traffic to that network at very little cost," agreed Robert Thurman, director of engineering at MFS. That cost, he explained, can be as little as adding interface cards to existing equipment.

Even new equipment is relatively inexpensive. A SONET multiplexer costs $20,000 to $40,000, compared to about $100,000 per node for equipment based on T-1 technology, said Michael Kennedy, a corporate networking consultant at Arthur D. Little, Inc. who worked on the project.

The network will consist primarily of AT&T SONET multiplexers; Tellabs, Inc. digital access and cross-connect systems in Comm Ed headquarters in Chicago and its data center in Joliet, Ill.; and Telco Systems, Inc. channel banks (see graphic, this page).

It will stretch throughout Comm Ed's entire service area in northern Illinois, where the utility currently serves 3.2 million customers.

About 25 sites will sit directly on an Optical Carrier (OC)-12 (622M bit/sec) redundant ring with a total of 65 locations directly or indirectly connected at OC-3 (155M bit/sec) SONET speeds.

Comm Ed's plan calls for dual unidirectional rings that, should one get cut, will reroute traffic to the other in less than 60 msec without a disconnection, Tirio said.

The utility decided to build the net following a three-year business needs forecast conducted with Arthur D. Little. The study revealed that Comm Ed's bandwidth requirements will likely grow 10% to 20% per year for the next several years, Kennedy said.

Another alternative explored was stringing together services from alternative access providers, he said, but there were too many gaps in service coverage. With SONET, Kennedy estimated that Comm Ed traffic surpassing 50M bit/sec of bandwidth will ride for free.

The SONET network will minimize tariffed leased lines and, in many cases, eliminate the need for a long-distance carrier, Tirio said.

BRIEFS

Bell Atlantic Corp. continues to persevere in the regional Bell holding companies' efforts to chip away at Modified Final Judgment restrictions. The carrier has asked the **U.S. Department of Justice** to eliminate bans prohibiting the RBHCs from providing interexchange services.

Bell Atlantic requested that it be allowed to provide long-distance telephone service outside its region and deliver programming by satellite nationwide. The request is aimed at allowing it and cable television merger partners **Tele-Communications, Inc.** and **Liberty Media Corp.** to pursue plans to compete with telephone companies outside the RBHC's region and with existing cable companies inside the region.

Meanwhile, **Southern New England Telephone** filed a suit in the **U.S. District Court of Connecticut** that challenges the constitutionality of the Cable Communications Policy Act of 1984, which prohibits telephone companies from providing video programming within their telephone serving areas.

Belgium's telecommunications carrier, **Belgacom,** has launched the country's first **digital cellular** telephone network, expected to serve 95% of Belgium by year end. Partner **Pacific Telesis International** is negotiating a 25% ownership stake in a proposed mobile communications Belgacom subsidiary.

US West Communications, Inc. has said it will add Denver, Minneapolis-St. Paul, Portland, Ore., and Boise, Idaho, to its **multimedia network** currently under construction in Omaha, Neb. US West hopes to have most network nodes completed by the end of next year and has committed to spend at least $750 million during the next two years on the information superhighway infrastructure. The nets will serve over 750,000 businesses and homes in the metropolitan areas.

Also, US West and **General Telephone Co. of the Northwest** have gained a competitor in Oregon: **Electric Lightwave, Inc.** The company, which has provided interstate communications services to Oregon customers for over three years, has gotten the nod from the Oregon Public Utilities Commission to provide services within local telephone exchange areas.

Electric utility wants to ride info highway

BY DAVID ROHDE

Washington, D.C.

Given an opening by Vice President Al Gore to enter the information superhighway chase, the electric utility industry is taking a cautious approach.

The American Public Power Association — the trade group for public power utilities — last week passed a resolution saying electric utilities "should be neither precluded from nor mandated to provide broadband communications networks and services."

The resolution came in response to Gore's recent Los Angeles speech in which he said "cable companies, long-distance carriers and electric utilities must be free to offer two-way communication and local telephone service" in order to expand competition against the regional Bell holding companies (*NW,* Jan. 17, page 6).

One industry leader is urging his peers not to wait.

Stating that public power utilities have a unique ability to provide universal service, Billy Ray, chief executive officer of the Glasgow Electric Power Board in Kentucky, last week issued a "wake-up call for public power."

Ray's recently formed American Public info-Highway Coalition claims to be "the one group that is offering a solution to the stated goal of universal service as once enunciated by the Clinton administration."

The Glasgow utility has constructed a high-speed network that helps it manage demands for power and supports an alternative cable television system. This project won the utility the 1991 Energy Innovator Award from the American Public Power Association.

The company hopes to soon provide competitive dial tone over the network. "We're looking for long-distance companies to partner with us [to complete local telephone calls]," Ray said.

Ray is urging his colleagues in the public power industry to emulate his work. His recently formed American Public Info-Highway Coalition claims to be "the one group that is offering a solution to the stated goal of universal service as once enunciated by the Clinton administration."

But at a press conference last week, Ray complained that no member of the electric utility industry had been named to the U.S. Advisory Council to the Information Infrastructure Task Force.

The recently announced advisory council consists of a range of representatives from top cable, long-distance and software executives to a schoolteacher and a local government telecommunications manager (*NW,* Jan. 10, page 2).

Ray conceded that he still has some missionary work to do within his industry.

"We found that the public electric utility sector is a very conservative industry," Ray said. "A lot of people just aren't getting it yet."

RATE & TARIFF MONITOR

by Eric Paulak

Alliances heighten int'l competition

For U.S.-based international businesses, foreign telephone networks have traditionally been the weakest and most expensive links in a corporate network. While that is still the case, as foreign telephone companies are privatized and new alliances are formed, foreign rates are coming down and services are improving.

BT is the best example. Mercury Communications, Ltd. and U.S.-backed cable television companies have taken such a bite out of BT's profits that it recently announced plans to cut its business and residential costs by an average of 12% in order to generate more business.

There's also been some major price cuts for improvement in terms of telecommunications services between the U.S. and Europe, as well.

In the early 1980s, a 56K/64K bit/sec line between the eastern U.S. and Western Europe cost anywhere from $17,000 to $23,000 a month, two-thirds of which went to the European carrier.

In 1992, the average cost of the same line was just under $8,000. As with the overall price, the European carriers' shares had dropped to about 58%. In the last year and a half, however, AT&T raised its rates by 3.9% and the European carriers dropped their rates anywhere from 7.6% to 27%.

Belgacom dropped its price from $4,452 for its half of the circuit to $3,722. BT's rate plummeted 25.7%, from $4,850 to $3,619; Deutsche Bundespost (DBP) Telekom plunged from $4,529 to $3,640; France Telecom went from $4,506 to $4,165; the Netherlands PTT dropped its rates an astonishing 27%, from $4,519 to $3,298. And coming in with the lowest price is the U.K.'s Mercury Communications at $3,256.

With these rate reductions, the Netherlands and the U.K. are now the least expensive half of the circuit, eliminating one of AT&T's long-standing arguments against letting foreign carriers into the U.S. market. As such, these would be your best bets if you're looking for a point of entry on the European continent.

So why all the sudden rate drops? Increased competition due to privatization is part of it. With privatization, the telecommunications market is being opened to competitors and the state-run monopolies have to trim their fat, even though full competition in Europe won't be allowed until 1998.

U.S. bellyaching about high rates is also taking its toll.

But what really could drive rates down in Europe, at least at the high end of the market, is the same thing that will drive them down in the U.S. — mergers and partnerships. When carriers team up, users are able to get better contract deals and bigger volume discounts because the volumes from both carriers are combined.

The biggest merger came with BT's 20% purchase of MCI Communications Corp. for $4.3 billion. This hasn't yet caused a big shift in pricing, but it did prompt BT to start its own version of MCI's Friends and Family residential discount plan. A business version is expected this quarter.

The second biggest deal is the partnering of France Telecom and DBP Telekom on international X.25 networks. Combined, they will be able to offer businesses bigger and better discounts. To make it really profitable, they need a U.S. partner. AT&T is said to be that partner, but nothing is firm yet. Joint service is supposed to start by next year.

Not to be left out, the Swiss, Dutch, Swedish and Spanish PTTs have also formed an alliance. But they also lack a U.S. counterpart, which is essential because the U.S. offers the biggest market potential.

One thing to be wary of when choosing a European carrier is that most European telephone charges are subject to very high taxes and surcharges that may not be included in the posted rates. In Belgium, for example, certain types of calls can be subject to taxes as high as 40%. Most, however, fall between 10% and 15%.

Paulak is associate publisher of the Center for Communications Management Information in Rockville, Md., a provider of rate and tariff information. He can be reached at (301) 816-8950, Ext. 327.

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comes from two

It's safe to say that few networked PC users around the world have ever heard of National Semiconductor. Certainly more are aware of Novell.

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DATA SERVICE MGMT.

Sprint chases AT&T, MCI on net management services

BY BILL BURCH

Washington, D.C.

Sprint Corp. last week said it will live up to a long-standing promise by launching SNMP-based management services for its frame relay and ATM offerings in the second quarter.

With AT&T and MCI Communications Corp. already offering SNMP management for frame relay, Sprint is aiming to get its version out the door quickly by coming out with software that lets existing SNMP management platforms access computers in the Sprint network to garner net management data. The software will work with systems such as IBM's NetView/6000, Hewlett-Packard Co.'s OpenView and SunConnect's SunNet Manager.

Sprint still plans to offer its own integrated management platform for monitoring and controlling its data service offerings, but that release will not come until the third quarter, according to Greg Crosby, Sprint's director of data product management.

For now, the carrier's new Frame Relay Agent and ATM Agent offerings will run on existing SNMP platforms and let customers use SNMP TRAPS and GETS to monitor network performance and check for alarm signals.

Further down the road, Sprint's own software will offer greater network management functionality, Crosby said. At that stage, the carrier wants to have management for all its voice and data services available on a single platform beginning in the first quarter of 1995.

The platform, called Insite, has supported management of 800 lines since May 1992, and the carrier announced last week management of its private line services is also now available. Sprint's Clearline Manager for private lines supports network reconfiguration, disaster recovery features, alarm surveillance, diagnostics and frame monitoring. With the service, users can make routing changes in roughly 30 minutes, Crosby said.

PLAYING CATCH-UP

The frame relay management product will help Sprint catch up to AT&T, which launched a similar service in October 1992, and MCI, which announced its SNMP support in February 1993.

Sprint gets on management bandwagon

New services will:

- Manage Sprint Asynchronous Transfer Mode (ATM) and frame relay services.
- Work with IBM's NetView/6000, Hewlett-Packard Co.'s OpenView and SunConnect's SunNet Manager.
- Be available in 2Q 1994.

Service charges

Installation: $200
Fault management: $200/month
Performance management: $200/month

Private-line connection charges are extra.
56K bit/sec line is required for ATM.

Sprint may have gotten behind because it was distracted by the idea of offering the integrated management platform for voice and data services, according to Mark Langner, an analyst with TeleChoice, Inc. in Verona, N.J.

"They've suffered from having systems that really aren't on the same level as what AT&T and MCI have," Langner said.

But he sees some advantages to Sprint's long-term management plan. It should better position the carrier to offer users a consolidated bill and single point of contact for all services, he said, and users will be happier with a single carrier platform for network management.

Langner's assessment was seconded by Jim Fey, director of strategic technology with PMI Mortgage Insurance Co. in San Francisco.

Fey uses WilTel's frame relay service in a 22-node, nationwide network that connects the financial services firm's headquarters to its branch offices.

To glean some network performance statistics, Fey is currently setting up WilTel's WilView network management system, but he will be using a different platform to monitor other equipment, he said.

With one network management system, life would be a little easier, he said.

Hubs

Continued from page 22

ceiver slot, and the 24-port model supports two.

The 1300 provides autopartitioning and autoconnection on a per-port basis. Autopartitioning will disconnect a port if excessive collisions are detected, while autoconnection will reenable the port when traffic returns to normal.

The hub also includes several redundancy features. Each has its own power supply and management processor, and each can have a redundant link to the network backbone.

Two transceivers or two RJ-45 ports on each hub can be paired to act as redundant links. If the primary link fails, the backup link will automatically activate within five seconds.

Each hub has an embedded Simple Network Management Protocol agent, which allows the stack to be managed by Hughes' Monet Network Management System or any third-party SNMP-based management platform.

The 1300, which is available now, costs $1,995 for 12 ports and $3,795 for 24 ports.

Comments

To comment on this or any article, drop us a fax at (508) 820-3467, call (800) 622-1108, Ext. 487, or message us via Internet at network@world.std.com.

Microsoft is gunning for more corporate accounts with EMS

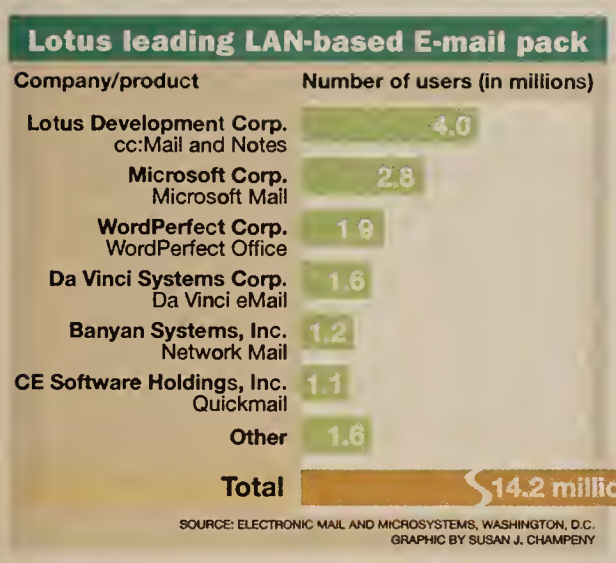
E-mail software to provide systems administration, security services.

BY ROSEMARY CAFASSO

Microsoft Corp. last week said its next-generation mail system, the long-Awaited Enterprise Messaging Server (EMS), will soon enter a four- to six-month beta program, which would put its delivery date in late summer.

EMS, which some observers thought would start shipping by midyear, is currently under evaluation by nearly 100 customers in a prebeta program.

The EMS rollout schedule reflects Microsoft's intention to position its new E-mail system as a solid, enterprise-class product for large corporate customers, said Todd Warren, a Microsoft group product manager.



EMS FUNCTIONS

The system's Windows NT-based server component will include host-like administrative functions, such as directory synchronization and security management, that are designed for large E-mail networks. Microsoft customers familiar with EMS said it will include an E-mail database, based on Microsoft's SQL Server, to house management information like user identification.

EMS, unlike Microsoft's existing Microsoft Mail software, will support the X.400 message transport and X.500 directory services specifications.

CORPORATE GOALS

Microsoft cannot afford a misstep with EMS, given the company's reputation as a desktop software provider that lacks the expertise to deliver products and services that enterprise network and information systems executives demand.

"Microsoft knows it has to be more sophisticated with system-level services, and mail is in that category," said Amy Wohl, president of Wohl Associates, a consulting firm in Bala-Cynwyd, Pa.

One technical analyst at an East Coast utility who requested anonymity said Microsoft has increased its understanding of corporate E-mail issues since acquiring Consumers Software and its Network Courier package in March, 1991.

"I think they thought it was a software-in-a-box-type product," said the technical analyst, one of more than 4,000 Microsoft Mail users at the utility.

"E-mail is the lifeblood of the company. It took [Microsoft] a while, but we have a good relationship now."

Microsoft has become increasingly competitive with Lotus Development Corp., the leading local-area network E-mail vendor, in going after such corporate accounts. Microsoft even disputes market share numbers from the Electronic Mail & Micro Systems newsletter, published by Business Research Publications in Washington, D.C., that show Microsoft behind Lotus by more than 1 million users.

Microsoft claims its user base, like Lotus', tops 4 million.

Dataquest, Inc., a research firm in San Jose, Calif., recently reported that Lotus had a higher penetration among corporate customers than Microsoft. But analyst Chuck Stegman said, "Both companies can improve what they do for companies with 10,000 or more users."

If Microsoft has its way, EMS will become the E-mail backbone system for just that kind of customer site. And actually, EMS is just one piece of a larger E-mail product launch Microsoft has planned for 1994.

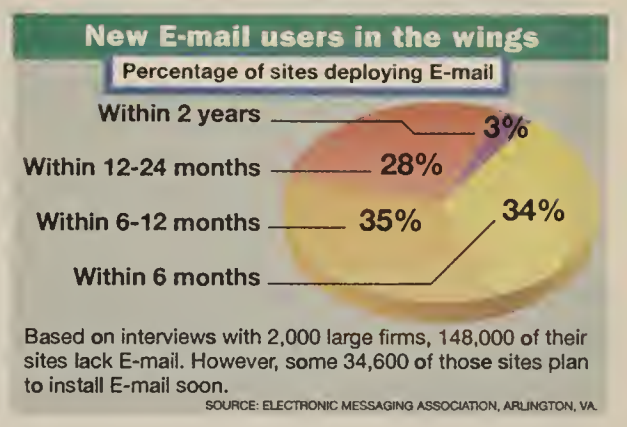
In addition, the company will introduce a follow-on to its Microsoft Mail Release 3.2 offering later this year. Microsoft will then provide two mail systems: Microsoft Mail, based on the older file-sharing model; and EMS, based on the client/server model. While the back-end server components of these products will differ, they will work with essentially the same front-end, or client, software.

Microsoft will also provide a migration plan for Microsoft Mail 3.2 customers. Long-term, it will only offer the EMS-based system.

CLIENT/SERVER MODEL

EMS departs from the industry's current E-mail model, typically a shared-file system in which much of the intelligence for routing messages resides on the client and the server plays a more passive role. Microsoft claims EMS has been built on a true client/server model where the server component carries far more of the intelligence load. As a result, EMS can handle higher level administrative

See **Microsoft**, *page 31*



Lotus handing cc:Mail users a price break

BY ADAM GAFFIN

Mountain View, Calif.

Lotus Development Corp. last week cut list prices for its laptop editions of cc:Mail by nearly one-third and introduced a version of its electronic mail software for remote Windows users.

The company announced that it has cut the price of cc:Mail Mobile, which used to be called cc:Mail Remote, from $295 to $195 per license.

The product is available on several platforms, including Apple Computer, Inc. Macintoshes, DOS-based personal computers and Hewlett-Packard Co. palmtop computers. The Windows version, expected to begin shipping this week, will carry the same list price even though it offers more features.

Licences for cc:Mail Mobile now each cover one user, regardless of how many machines are used. Previously, Lotus required a separate license for each machine.

Lower prices for remote E-mail packages could mean more of the software will be sold, challenging E-mail managers to give more remote E-mail users access to corporate mail systems. But the new offering, cc:Mail Mobile for Windows, has several features that could make life easier for net managers, including a detailed call tracking system that lets them diagnose connectivity problems.

Ann Shaw, product manager for cc:Mail, said the Windows version also offers several features not found in the other remote cc:Mail versions. These include a docking mode for users who want to download messages or message folders in bulk while still in the office for later use elsewhere. The Macintosh and DOS versions will eventually get these features, but Shaw declined to say when.

The Windows software supports a handful of communications protocols, including X.25 and Transmission Control Protocol/Internet Protocol. The software will work with RAM Mobile Data, Inc.'s wireless network, as well.

Bob Stratton, technical advisor for Gulf Canada Resources, Ltd. in Calgary, Alberta, described the Windows product as "fabulous." He also cheered Lotus' overall committment to multiple platforms.

Stratton, said one improvement he would like to see is the ability for a remote user to open his mailbox and folders while on the road, click on the ones he wants and then have them downloaded at once.

✆Lotus: (800) 448-2500.

BRIEFS

WordPerfect Corp. of Orem, Utah, announced last week it would lay off 1,025 workers — 17% of its workforce — to try to stay competitive in a desktop software market that has seen prices fall dramatically in recent years.

WordPerfect sells electronic mail, group scheduling, word processing and other software packages.

The National Association of Security Dealers, Inc. (NASD) has signed a $2.6 million contract with the Advanced Information Management division of **Texas Instruments, Inc.** to license the vendor's Information Engineering Facility for Client/Server **development tools.**

The NASD will use the software to build network applications for its NASD Automated Quotations (NASDAQ) system. The applications will run on servers from Sequent Computer Systems, Inc., Unisys Corp. and others.

Texas Instruments: (214) 995-6611.

Covia Technologies, Inc. has announced support for IBM's IMS database in its **middleware offering,** the Communications Integrator. The software will support IBM's Applied Program-to-Program Communications technology as well as Transmission Control Protocol/Internet Protocol on request.

IMS support will enable the Communications Integrator to pick up messages from various databases and insert them into the IMS message queue.

Covia: (800) 566-1969.

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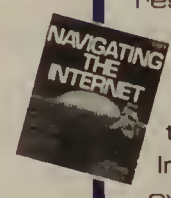

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DATABASE MANAGEMENT SYSTEMS

Borland pumps up InterBase for client/server networks

BY PETER LISKER

Scotts Valley, Calif.

Borland International, Inc. has announced a new version of its InterBase database server software as well as a complementary middleware product called Express Link that adds connectivity and other capabilities to the database.

InterBase 4 is a fundamental component of Borland's strategy to help users upsize applications from Paradox and dBase databases on the desktop — where Borland has faired well — to the server — where its products have not been well received.

Key features of InterBase 4

1. **Express Link middleware** enables desktop applications to issue SQL commands to InterBase.
2. **Explicit record locking** allows networked users to seal off server-based records in use to avoid data integrity problems.
3. **Application Refresh** enables the database server to send users not only the exact data they request, but also related data. This cuts down on multiple data requests and network traffic.

Express Link, a key piece of Borland's InterBase upgrade strategy, runs alongside InterBase at the server and provides users with the ability to issue SQL commands from their desktop applications to the server database. Express Link is an implementation of Borland's Integrated Database Application Program Interface (IDAPI) middleware and will provide programs that support IDAPI, including Borland's dBase and Quattro Pro offerings, with better access to server-based data.

InterBase 4 includes several new capabilities designed to enhance the database system's appeal to network administrators. Using bidirectional pointer technology, scrollable cursors promise to cut down on network traffic by eliminating the need for end users to make multiple requests against the database server.

In addition, InterBase 4 will include ANSI SQL 2 entry-level support and a number of SQL extensions, including the ability to use stored procedures and triggers. These features allow the deployment of applications that can reduce net traffic and ensure data integrity.

InterBase 4 will be available on Intel Corp. microprocessor-based platforms running IBM OS/2, Microsoft Corp. Windows NT and Novell, Inc. NetWare. Express Link and InterBase 4 are slated to enter beta tests in March and are scheduled to ship by fall. Pricing will be announced at that time.

While Borland continues adding features to InterBase to make the product more competitive with databases from Oracle Corp., Sybase, Inc. and others, InterBase still lacks features necessary to woo large users, observers said. For example, InterBase is without database replication capabilities and parallel processing support.

"Borland should concentrate its resources at the desktop level rather than trying to create a presence in the corporate database area that they really can't compete in," said John Morrell, research manager for advanced operating environment software at International Data Corp., a market research firm in Framingham, Mass.

✆Borland: (408) 438-8400.

Microsoft

Continued from page 29

functions across a corporate E-mail network.

Some Microsoft customers are impressed with what Microsoft has at least promised with EMS.

The Centers for Disease Control & Prevention (CDC) in Atlanta elected not to evaluate EMS because of time constraints, said Christopher Lynberg, a computer specialist. However, he said EMS, as described by Microsoft, could assist CDC in creating an E-mail environment akin to a "transaction-oriented processing system."

The New England insurance company in Boston is another Microsoft customer looking for a more sophisticated mechanism to manage its E-mail network. With 500 Microsoft Mail users, the company is starting to see performance glitches and administrative hassles, said Tom Shaw, systems consultant.

"A lot of it has to do with the fact that [Microsoft Mail] is just a shared-file system," Shaw said.

"I don't think that 's suited for a large number of people. When they move to a real mail database, that will help us out a lot."

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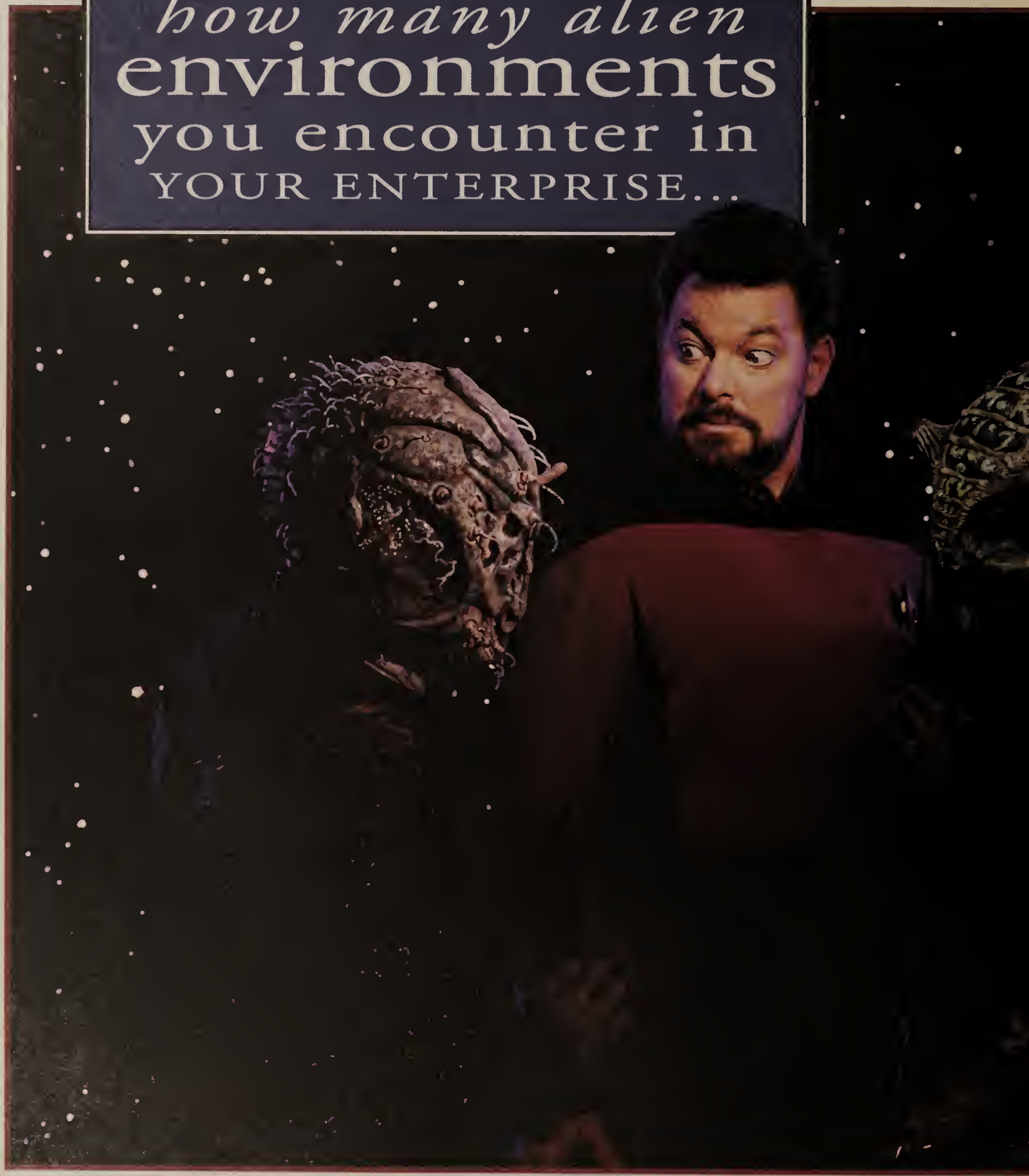

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Editorial

Yes, 1993 was a big year for telephone companies, with the partnering and the positioning, and all the other things involved in getting ready to head down the information superhighway. The video-on-demand trials are under way, and the press releases are flying — they're really rolling now.

There is one pit stop ahead, however, that's a little scary for customers. The carriers will be pulling over to let off tens of thousands of workers in the months ahead, and users have to wonder what that means for the quality of service and support they'll be getting.

Last week, NYNEX Corp. said it plans to reduce employment in New York and New England by nearly 17,000 employees — some 22% of its work force — by 1996. Earlier in the month, GTE Corp. said it will cut back by the same number of employees over three years, while Pacific Telesis Corp. vowed to reduce its work force by 10,000 prior to 1997.

In fact, a chart in last Tuesday's *New York Times* shows planned job reductions announced during the past 18 months by local carriers totaling well over 65,000 workers. Those cuts affect GTE and six of the seven regional Bell holding companies. Some long-haul carriers are also downsizing their work forces.

Ironic, isn't it? Amidst all this talk about a national information infrastructure and all the posturing about new services and a brave new future of home shopping and 500 channels that will come with it, carriers are cutting back in a big way.

That's especially disturbing when you think about the service and support you're getting today, particularly from local carriers. But what does it say about the carriers' ability to deliver and support the next generation of services — such as frame relay, Switched Multimegabit Data Service and Asynchronous Transfer Mode — that are critical to your future network? The carriers have to help you make that migration at the same time they're wading into cable television, home shopping and whatever else, and all with fewer people.

Now, downsizing isn't intrinsically bad. But while the carriers are slinging the hype about the information superhighway, try to bring them back around to the basics. Ask them how they'll ensure top-notch service and support at a time when their mission is expanding and their resources contracting.

➔JOHN GALLANT jgallant@world.std.com

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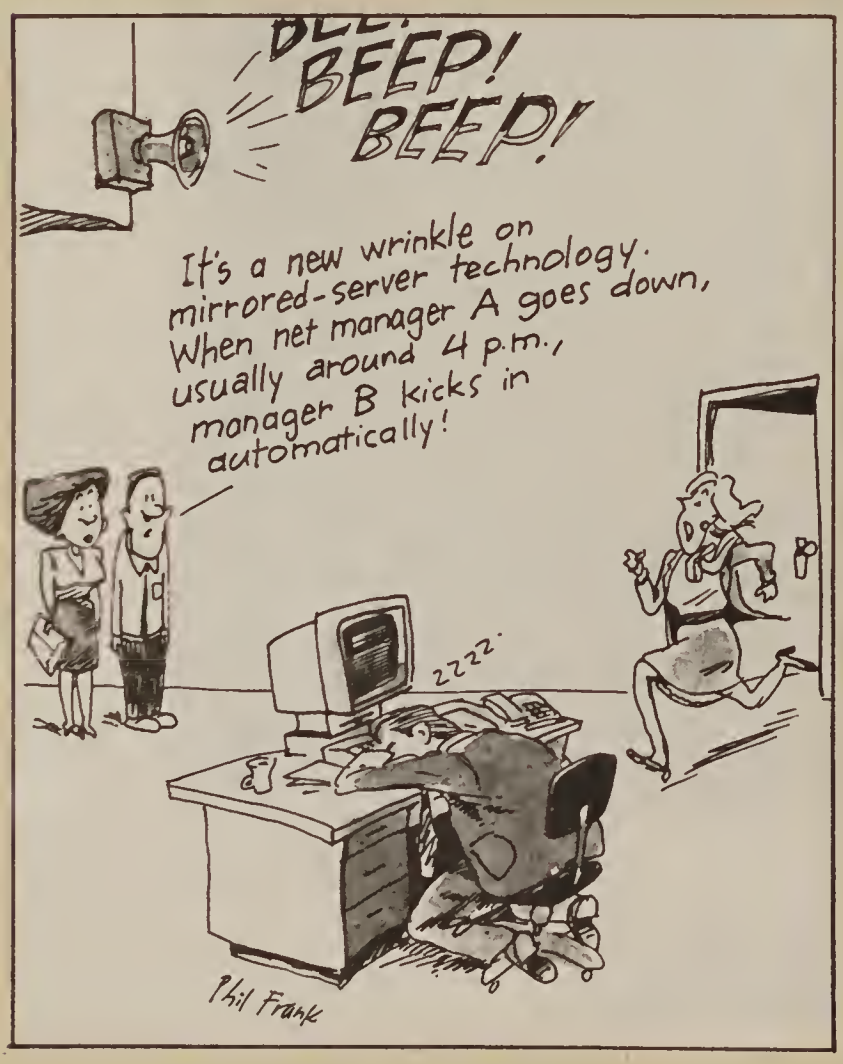

THE BLUE VIEW

by Anura Guruge

SNA over frame relay won't aid in shift to multiprotocol nets

SNA is about to get yet another mid-life kick from IBM. IBM's Advanced Communications Function/Network Control Program (ACF/NCP) Version 7 Release 1 for 3745 communications controllers — scheduled to be released last week — will add true frame relay support for Systems Network Architecture. But, while SNA over frame relay will offer users benefits in terms of cost savings and network simplification, it will not solve the main problem today's SNA users face: transitioning SNA backbone networks to multiprotocol networks.

With ACF/NCP 7.1, SNA users will be able to use native frame relay connections between their huge installed base of peripheral devices (such as 3174 control units and AS/400 minicomputers) that support the actual end users and the SNA mainframe-centric backbone. This will benefit users mainly in two ways: by reducing network costs and simplifying protocol processing.

Frame relay permits multiple virtual circuits — each, in effect, corresponding to a connection to an SNA peripheral node — to be multiplexed over one physical access link between a 3745 and a frame relay network. This will let most SNA users reduce their networking costs — they will be able to share a single-access link to the frame relay service, rather than having to use multiple, 3745 ports and dedicated long-distance links. In addition, users will be able to enjoy the attractive, typically usage-based, frame relay tariffs.

To cap it all, the similarity between frame relay and SDLC in terms of their frame structure and protocol conventions means that no hardware upgrades or modifications are required at the 3745 end. Converting from SDLC to frame relay on a 3745 is done entirely via the ACF/NCP 7.1 software.

Users with distributed SNA backbones consisting of multiple link, interconnected 3745s can achieve further cost savings by being able to build a fully interconnected mesh network between 37XXs, without requiring all the dedicated, point-to-point SDLC links previously needed. The slimmed down protocol processing of frame relay — particularly the elimination of error checking and error handling at every intermediate node along an end-to-end path — could also increase the overall throughput of frame relay-based connections compared to SDLC or X.25 connections.

Despite these indubitable attractions of SNA over frame relay, ACF/NCP 7.1 is not the panacea to SNA's current woes. If anything, it just raises more questions and confuses the issues further.

For starters, SNA over frame relay support is not yet available on many, if any, peripheral nodes. So, at the present, this "solution" is one-sided — it is supported only on the host side. However, IBM is very committed to frame relay and has stated that frame relay support eventually will be available on all of its strategic product lines.

Nevertheless, it is still unclear when SNA over frame relay support will be available on the 3174 control unit, the most widely deployed SNA peripheral node. And, while frame relay support on the AS/400 was announced in September 1993 (with December 1993 availability), that version of AS/400 frame relay is not compatible with ACF/NCP 7.1 — it is being positioned as a means for interconnecting multiprotocol LANs to AS/400 via source-route bridging.

Moreover, many of the 3270 peripheral nodes in use today are not IBM 3174-based; they are either from other vendors or emulated via some form of gateway product. Until these products start supporting SNA over frame relay, or until appropriate frame relay access device conversion boxes are available, SNA over frame relay will remain just another example of IBM's equivalent of "batteries not included" — something users buy only to discover they can't use it as is.

ACF/NCP 7.1-based SNA over frame relay also does not directly address the perennial problem now facing SNA users: transitioning their mission-critical, SNA enterprise backbones to true multiprotocol backbones capable of handling LAN-to-LAN traffic, as well as LAN-to-host or link-to-host traffic. Both ACF/NCP 7.1 and its predecessor, ACF/NCP 6.2, released last May, enable SNA users to build a 3745-based frame relay solution for consolidating SNA and multiprotocol backbones. However, this approach requires the use of conventional bridge/routers to handle non-SNA LAN traffic.

Both ACF/NCP 6.2 and 7.1 enable a 3745 to act as a bona fide frame relay data circuit-terminating equipment switch. Most bridge/routers, including IBM's 6611 and the RouteXpander/2 feeder node, can act as frame relay data terminal equipment. Thus, SNA users could interconnect bridge/routers located on dispersed LANs to one another, using frame relay, across a single 3745 or a collection of 3745s acting as a backbone network. In effect, the 3745s provide a private frame relay network. With ACF/NCP 7.1, the SNA connections to the 3745 network could also be frame relay based, provided the necessary support is available at the peripheral nodes.

The burning question, however, is do users really want a private frame relay network built around aging and lumbering 3745s? They could build an Advanced Peer-to-Peer Network-capable multiprotocol corporate backbone just by using conventional bridge/routers — without the 3745s — and a public frame relay service. At best, ACF/NCP 7.1-based SNA over frame relay will only be a vicarious adjunct to that solution.

To most users, SNA over frame relay, a la ACF/NCP 7.1, has somewhat limited appeal. With the advent of the necessary peripheral node side support, it could provide an attractive frame relay-based solution for SNA networking. However, SNA networking, in isolation, is no longer in vogue.

Multiprotocol routing across frame relay is what most user enterprises are now looking for. To perform multiprotocol routing today, SNA users have two distinct choices: They can use a 3745-based private frame relay net with bridge/routers or use bridge/routers with a public frame relay service. The cost of the two alternatives will depend on a variety of factors: network configuration, traffic volumes, public frame relay tariffs and the residual value of the 3745s being key among these. This, the frame relay facet to the SNA vs. bridge/router debate, will no doubt get thrashed out at many enterprises throughout the coming year.

➔Guruge is an independent consultant specializing in internetworking and IBM network architectures. He writes extensively, presents seminars worldwide and can be reached at (603) 878-1303 or via Internet/MCI Mail at aguruge@mcimail.com.

TELECOMMUNICATIONS POLICY

by Alan Pearce

MCI plan bodes well for users

MCI Communications Corp.'s plan to spend $2 billion to build alternative local access networks in 20 major U.S. cities (*NW*, Jan. 10, page 1) threatens to shake up the telecommunications industry much more than any of last year's highly publicized mega mergers. And although MCI will clearly benefit from the move, the real winners will be users, who will benefit from the increased competition that will result.

By promising to introduce rapid and powerful competition at the local loop, MCI is threatening the so-called bottleneck controlled by the local telephone companies, primarily the regional Bell holding companies. However, the resulting competition may go much farther than MCI (and other long-haul carriers) anticipate. In fact, it will lead to the RBHCs' competitive entry into long-haul services. And if that doesn't shake the industry up, nothing will.

In addition, intensified local origination and access competition will help focus the public policy debate on what the Clinton-Gore administration is referring to as "a new universal service concept" for the information age. According to this concept, everyone — regardless of age, income or geographical location — should have access to the information superhighway.

Make no mistake, MCI's intent is to significantly reduce its costs, lower its prices somewhat and make a lot more money. Its plan, simply stated, relies on the fact that MCI believes it pays too much to the local telephone companies for local origination and termination of long-haul services. Now, MCI must pay the RBHCs and other local and competitive access carriers an average of 5.4 cents per minute for each long-haul call. MCI argues that the cost of access should range between 1 and 3.1 cents per minute.

There is actually not much disagreement that the price long-haul carriers pay for local access is significantly higher than the cost of providing that access. The excess built into the price of local access is used as a subsidy to help pay for the entire universal telecommunications network.

The problem with MCI's plan is that it is prompting the RBHCs to ask the federal government for a quid pro quo. If MCI is allowed to get into the local business, the RBHCs argue, then they should be allowed to get into the long-haul business. BellSouth Corp., for example, claims that it could be "very competitive" in the intra-regional long-haul service business if it were allowed to go up against MCI, AT&T and Sprint Corp. The long-haul triad, however, claims that such a move would represent unfair competition since BellSouth's network is already in place.

This brings up the policy dilemma the Clinton-Gore administration faces regarding the extent to which all telecommunications markets be opened to competition. The dilemma is created by incumbents who want to protect their markets from competitive entry while reserving the right to competitively enter the markets of others. It has three crucial aspects.

First, the MCI (and AT&T) argument against the RBHCs offering long-haul services is that the RBHCs are the low-cost (and therefore charge lower prices to the user) provider. While this is true, it surely cannot be argued that the public should be forced to pay higher prices to the incumbent long-haul providers simply because they cannot compete with the RBHCs. If that argument has any merit, then I'm going to seek government protection against all the university professors who are attempting to "steal" the clients that comprise my consulting and research business.

Second, MCI plans local competition only in selected areas. By targeting Atlanta for the first of its alternative access fiber networks, MCI knows that 0.2% of the land area in Georgia produces 25% of business calling revenues. MFS Communications Co., Inc. a current alternative local access provider in Atlanta, competes for almost 25% of BellSouth's access revenues with a fiber network of only 47 route miles. By contrast, BellSouth operates more than 34,000 route miles in Atlanta because it has to serve all users in a nondiscriminatory, nonpreferential fashion.

Third, policymakers must now focus on a new definition (or concept) of universal service for the information age. And while they are thrashing this out, they must consider hitting up a wider universe of telecommunications suppliers to help subsidize the universal and ubiquitous information superhighway so that all can be served. This means that not only must local telephone companies and long-haul carriers pay up, they may have to be joined by all kinds of information and entertainment providers who henceforth will be required to cough up a "network access" fee.

Alternatively, the government could, of course, levy a telecommunications net tax, except that new taxes have a habit of bringing down incumbent politicians. Just ask George Bush.

The good news in this competitive and public policy confrontation is that, regardless of what happens, all users will benefit — in the short and the long run. We are entering an age of more choice, more competition, lower prices and suppliers of services pandering to us. What more can we ask for as we careen toward the information age?

Pearce is president of Information Age Economics, Inc., a telecommunications research firm in Washington, D.C. He can be reached at (301) 320-3608.

Letters

In praise of Hughes

I enjoyed reading your issue "On the road to 1994" (Dec. 27, 1993/Jan. 3, 1994) — it was well thought out and informative. However, I noticed one vendor that received no mention in the issue: Hughes LAN Systems, Inc.

Hughes makes a complete line of networking equipment. I work in a hospital and we use Hughes Enterprise hubs along with their 10Base-T equipment, terminal servers, multiport bridges, wide-area network bridges and Monet network management system. They produce some of the best products and have the best customer service in the business. When I receive a product or an upgrade, I don't have to worry if it is going to work.

When I have had trouble, Hughes' customer service department has gone out of its way to help me get the problem worked out. We have networked our entire facility, along with some off-site locations, so the equipment we use must be reliable. I truly think Hughes is one of the few companies left that puts customers and their needs first.

Larry Rupard
Network analyst
St. Mary's Medical Center
Knoxville, Tenn.

Back to reality

Concerning Mark Gibbs' article "MIS Realities 101" (Dec. 20, 1993, page 18): Mr. Gibbs makes some good points. However, his arguments against outsourcing, while valid at first glance, fall apart when you delve into the implications of some of the preceding comments in the article.

The major problem with his arguments is that they do not take organizational size into account. Small to midsize organizations may have significant problems trying to staff MIS departments and might be forced to buy computer equipment that they really don't need. For example, a midsize company might be required to maintain three to four information systems (IS) people on staff to support their network. For these people there is little opportunity for career growth, and they must look outside the company for advancement opportunities in job and salary. It is natural that there will be a very high turnover rate on this environment. Even if an organization throws more and more money into the IS department, you will not have a systems administrator in smaller companies making $70,000 per year.

I contend that since there will be a relatively high turnover rate and that service would suffer, it would be much more reliable to outsource. Instead of being forced to buy computer equipment, smaller companies would be able to share equipment if they are outsourced.

Additionally, software maintenance costs can be significantly decreased through outsourcing. For example, by outsourcing their payroll programs, companies can save a great deal of money — especially when you consider that the program will have to be modified, at least annually, to stay current with changing tax laws and policies.

We do not think it strange when large companies outsource their building maintenance, cafeteria or garbage disposal services. Basically, companies feel that they do not know how to adequately operate "specialty" areas. In times of downsizing and with companies needing to regain their strategic focus, it is

See **Letters**, *page 36*

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Help desk

Continued from page 2

$7,750. For more product information, call (800) 637-7740.

Novell's LANalyzer for Windows 2.0, a network management tool for monitoring and analyzing networks, will provide some of the information you are looking for, such as reporting how much data has been read and written by a workstation. LANalyzer for Windows costs $1,495 per server. For more product information, call (800) 638-9273 or (801) 429-5588.

Intel Corp.'s LANDesk Manager 1.5 tracks server statistics, such as memory, disk space and utilization, and provides feedback when the server has reached a certain level. Other features include LAN traffic monitoring, application monitoring and server status. LANDesk Manager costs $1,495 per server. For more product information, call (800) 538-3373.

Central Point Software, Inc.'s XTreeNet 3.0, a NetWare network and file manager, allows management of server volumes and disks on local or remote workstations. Users can generate reports on volume/directory information, while network administrators can obtain information on who is accessing files. Also, a connection list displays statistics and commands that allows network administrators to tag, untag or send a message to selected users. Pricing for XTreeNet is $495, with server extensions at $295. For more product information, call (503) 690-8088.

I am looking for a way to do network Dynamic Data Exchange (DDE) across an Artisoft, Inc. LANtastic network. I want to be able to do DDE calls from a workstation to an application on the server.

Foster Schucker, Eagle, Pa.

Rick Roth, a senior technical support representative at Artisoft in Tucson, Ariz., replies:

With LANtastic 5.0, applications cannot communicate directly with each other. However, data can be shared by posting it to the LANtastic Scrapbook.

For example, sales data could be forwarded to the scrapbook from a spreadsheet. Others with access to LANtastic Scrapbook can copy this data and include it in a word processing document.

Artisoft recently licensed network DDE technology from Symbiotics, Inc. Currently, they have not incorporated this technology into any Artisoft products, but they will be exploring these options in the future.

Letters

Continued from page 35

very reasonable for companies to admit that computer support is a very unique and difficult business. It is better to let experienced companies manage your IS resources than to mismanage your own resources into the ground. According to most of the literature on outsourcing experiences, outsourcing can provide companies with better turnaround on user requests and lower costs in the long run.

While I do think that Mr. Gibbs makes some good points, I do not think that you can just state, "Don't even think about trying to outsource." It is too complicated an issue. I believe that a decision to outsource must be made with firm understanding of the business environment in mind. It is a lack of understanding of the business that has caused the computer profession to be managed by business professionals, rather than computer professionals. Let's try to educate the computer professionals in understanding business concerns as well as the technical concerns.

Ira Winkler
Senior computer scientist and task leader
Science Applications International Corp.
Annapolis, Md.

Mark Gibbs' article "MIS Realities 101" is quite insightful on the requirements that downsizing imparts on the organization. I would like to make two comments.

Regarding Lesson 3, in which Gibbs says not to even think about trying to outsource any major part of your MIS services: Outsourcing today parallels the "insourcing" that was prevalent when I got into this business in 1981 — except in reverse. Back then, the strategic move was out-of-service bureaus, moving the MIS function in-house.

Regarding Lesson 4, in which Gibbs says to think of MIS as a service that is as basic as electricity: If that is what MIS is, then any cost-cutting is justified. But surely MIS (in the leading shops) is supplying technology solutions to give the organization a competitive business advantage. I think you rightsize because doing so allows you to do the things that MIS needs to do to help the company gain market share, cut production costs, fill orders faster, handle inventory more efficiently and so on.

The bottom line: If MIS is an overhead, cut the cost. If it is a weapon, use it!

Mike Drummer
Senior technology consultant
Perle Systems, Inc.
Westmont, Ill.

Gibbs' reply: My central concern with outsourcing is that it requires you manage the outsourcer for it to work successfully. As a parallel, you wouldn't let someone administer your finances without real management at your end. If you don't trust other people with your cash, why would you trust someone with your computer services? If you are going to manage the outsource supplier, you need a professional, and, as they say, if you pay peanuts, you get monkeys.

As for treating MIS as a service, I can't imagine why you would treat it (or accounting or sales) as anything else — it's a means to an end, not an end in itself. That fact not only allows it to be a weapon in developing corporate edge, but it also ensures that costs are watched and that MIS is demonstrably effective.

Weather or not

I am sure that the editors of *The Farmer's Almanac* are glad to see that *Network World* is assuming the thankless task of predicting future weather patterns. For too long, they by themselves have had to shoulder this awesome burden, along with the heavy responsibility that goes with it.

Perhaps the entry in your "Recent network-shaking disasters" time line graphic (Jan. 24, page 3) that says, "Spring — Flooding throughout the Midwest" was meant to point to 1993 and not 1994?

Richard Strassberg
Systems programmer
New York State Insurance Fund
New York

Editor's reply: Luckily for The Farmer's Almanac, *we're leaving the meteorological forecasting to them. Thanks for correcting our "weather report."*

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WHAT A GREAT IDEA!

NETWORK WORLD TEST ALLIANCE

Phone billing made easy

Electronic billing and reporting software offers sites simple and paper-free methods for keeping tabs on their phone services.

BY MARK LANGNER

In response to their customers' demands for more customized billing reports and less paper clutter, several long-distance carriers are now offering computer-based reporting and analysis tools. With these applications, sites can generate their own reports and analyze their own calling patterns.

The early versions of these applications were somewhat limited in their capabilities. Although they were capable of generating some useful reports, they often required excessive amounts of processing time, particularly for the reports required by large customer sites. The current generation of electronic billing and reporting software has addressed these shortcomings. These newer packages offer better processing capabilities, improved user interfaces and more robust feature sets.

We took a close look at the electronic billing software offered by four of the nation's largest long-distance carriers — AT&T's SDN Billing Edge, Cable & Wireless Communications, Inc.'s Call Management Software (CMS) for its electronic billing package, E-BIS, MCI Communications Corp.'s Perspective and Sprint Corp.'s FONView.

In addition to these packages, both AT&T and MCI offer separate electronic billing packages for their mid-size business customers. AT&T has SDN Billing Edge for Uniplan and CustomNet, and MCI has Perspective for Vision, Portfolio and 800 TrafficView. We did not test these packages, opting to look at each carrier's high-end offering.

During our testing, we found that these electronic billing packages provided the necessary tools to analyze both current and historical billing data. These packages allowed us to perform a number of tasks on demand — tasks, such as account code reporting with employee names attached and searches for all calls made to a particular telephone number during the past month.

In addition, all of the packages offered rebilling capabilities, a useful feature for sites that assess charges to internal clients. These packages offer different methods

Continued on page 40

NET Result

Product	Call Management Software 2.0	FONView 4.2	Perspective 1.5	SDN Billing Edge 1.3
Vendor	Cable & Wireless Communications, Inc.	Sprint Corp.	MCI Communications Corp.	AT&T
Platforms	Intel Corp. 80386 and 80486	Intel 80286, 80386 and 80486	Intel 80286, 80386 and 80486	Intel 80386 and 80486
Requirements	4M bytes of RAM	4M bytes of RAM	4M bytes of RAM	4M bytes of RAM
Key findings	• Supported cross-service reporting • Offered rebilling capability and name substitution • Monthly fees included • Did not run under Windows	• Offered best performance in the group • Supported cross-service reporting • Lacked detail in documentation • Did not run under Windows	• Provided good documentation • Did not offer ad hoc reporting capability • Did not run under Windows	• Offered excellent one-button report generation capability • Provided clear, concise documentation • Did not run under Windows

Continued from page 39

for marking up or discounting calls to internal departments.

In the past, sites were literally on their own in their efforts to generate these types of reports. Creating such reports required sites to merge multiple data tapes — with the assistance of third-party firms or internal MIS departments — provided by the various carriers. Typically, such a procedure proved to be expensive and time-consuming.

Of the four packages we tested, SDN Billing Edge and FONView proved to be the best. For quick processing and broad service coverage, FONView is the right choice. FONView bested its competition in most operations-related issues, including presentation, speed and system maintenance. AT&T's SDN Billing Edge, on the other hand, excelled in its documentation, installation procedure and one-button processing capability. In addition, AT&T's rebilling capability was the best of the bunch.

FONView ranked first in nine of the 14 testing categories, while AT&T ranked first in eight categories (see story, this page). CMS and Perspective tied for No. 1 in three categories, with CMS winning only one category outright — time to delivery.

AT&T and MCI do not charge for electronic billing. Sprint's fees for FONView are between $25 and $250, depending on the user's net. Cable & Wireless has a $25 onetime fee plus $20 to $25 per month, depending on media.

GETTING STARTED

All of these packages require a fairly simple computer setup by today's standards. Perspective and FONView will run on 80286-based systems, although most users will want to put it on faster platforms. We wouldn't recommend running any of these programs on anything less than an 80386-based system. Sites that expect to generate many large reports should consider 80486-based systems.

We tested the software on an 80386-based system running at a clock speed of 50 MHz with 4M bytes of random-access memory, a 200M-byte hard disk, two Hitachi, Ltd. CD-ROM drives and a Zypcom, Inc. Z32t-SX 28.8M bit/sec modem.

We asked each carrier to provide a typical customer database — approximately 750,000 records per month totaling about $60,000 to $75,000 per month in long-distance expenses. For CMS, however, we tested the software with only 3,000 records. The smaller data size reflected the small to midsize customer base of most Cable & Wireless users. AT&T, MCI and Sprint distributed their data on CD-ROM, while Cable & Wireless used a diskette for their customer records.

During our installation of these packages, we uncovered some important issues. First, we discovered that SDN Billing Edge is somewhat of a disk hog, requiring a whopping 8M bytes of disk space just to store the program. Perspective wasn't much better. It needed 7.5M bytes to hold the analysis software.

At the other end of the spectrum, FONView only consumed about 1M byte of space. AT&T's software also grabbed quite a bit of memory. It consumed so much of the memory on our 4M-byte system that we had difficulty opening other applications at the same time.

Despite some steep resource requirements, each package was easy to install; there were no surprises. It is worth noting that AT&T includes software upgrades on its SDN Billing Edge CD-ROM distribution, so each new CD-ROM, in effect, requires new installation.

SDN Billing Edge's documentation was the best, with its easy-to-follow, walk-through instructions for each procedure. Perspective also had good support materials. In contrast, FONView's and CMS' documentation lacked detail and user friendliness. None of the packages came with training materials, such as videos or on-line tutorials, to speed users along the learning curve. A careful reading of the manual is a virtual requirement for all these products.

We were quite pleased with the technical support provided by the vendors. When we incorrectly installed Symantec Corp.'s Q&A, a companion database program that is bundled with CMS, our customer support representative was able to identify the problem and bail us out. Similarly, AT&T's technical support line helped us work through the issues of installing AT&T's software.

None of the packages offered state-of-the-art presentation. In fact, none of them ran under Windows. They all relied on pull-down menus, while SDN Billing Edge and Perspective were the only ones that supported mouses.

We hope these vendors add support for Windows soon. There are several advantages to running these software packages in a Windows environment — advantages that would serve users well. Windows would allow users to cut and paste between programs, making it easier to incorporate billing data into reports and presentations. It would also be nice to use Windows' polished graphical user interface.

AT&T has indicated plans to roll out a Windows-based version of SDN Billing Edge, which will be called SDN Billing Edge for Windows, at its March Software-Defined Network user group meeting. This version of the software will be backward-compatible with older SDN Billing Edge data.

UP AND RUNNING

Once we installed these products and started to work with them, we discovered substantial differences in features and capabilities, even at very basic levels. For instance, FONView and Cable & Wireless are the only carriers that can perform cross-service reporting, which allows sites to combine billing information from different services such 800 services, virtual network services and private-line services.

SDN Billing Edge was the only product designed to run across a local-area network. The data sets can be set up with passwords that prevent unauthorized network users from accessing certain information. Some of the other carriers indicated that they are looking

How they rated

Product	Call Management Software	FONView	Perspective	SDN Billing Edge
Vendor	Cable & Wireless Communications, Inc.	Sprint Corp.	MCI Communications Corp.	AT&T
Cost	5	5	10	10
Customized reporting capabilities	4	6	2	6
Documentation	6	5	6	8
Ease of use	7	7	6	5
Graphic capability	6	6	6	6
Installation	4	7	7	7
Maintenance	5	7	4	5
On-screen presentation	6	6	5	4
One-touch reporting capability	6	0	6	7
Processing speed	3	7	3	5
Rebilling	5	4	5	6
Services covered	7	8	5	4
Standard reporting capabilities	5	7	5	7
Timing of data delivery	7	5	6	5
Overall rating	5	6	4	6

Products were ranked in 14 different categories on a scale of 0 to 10, with 10 being the highest possible score.

Are your services covered?

Product	Call Management Software 2.0	FONView 4.2	Perspective 1.5	SDN Billing Edge 1.3
Vendor	Cable & Wireless Communications, Inc.	Sprint Corp.	MCI Communications Corp.	AT&T
Services covered				
Card services	Cable & Wireless Card	FONCard, VPN FONCard and VoiceCard	Vnet Card and Vision Card	SDN Card
Data services	No	VPN Switched 56/64	Switched 56 and Switched 64	Software-Defined Data Network 56, 64 and 384
International services	Yes	Yes	Yes	Yes
Private-line services	No	Yes	Yes (access fee is additional)	No
Small business	Venture and Simplicity (less than $2,500 per month)	Clarity and The Most for Business	*	*
Virtual network	Virtual Network Service (VNS), Venture and Simplicity	Virtual Private Network (VPN)	MCI Perspective for Vision	SDN
800 services	VNS, Venture, Simplicity and Nationwide 800	All Sprint 800 services	Vision 800 handled through MCI Perspective for MCI Vision; Separate MCI 800 Traffic View can be accessed from under Perspective for 800 traffic data, not billing.	Network Remote Access Express traffic; SDN Billing Edge products for CustomNet and Uniplan include Uniplan and CustomNet 800 traffic.
Teleconference	Yes	No	No	No
Fees	$25 setup fee; $25 fee for floppy diskette; $20/month on-line fee	$10-$50 for installation; $25-$250 monthly fee	No	No

*AT&T and MCI offer separate electronic billing products for small and midsize business customers.

HOW WE *did it*

We tested all of the software packages on an Intel Corp. 80386 50-MHz PC with 4M bytes of RAM, a 200M-byte hard disk, two Hitachi CD-ROM drives and a Zypcom Z32t-SX 28.8M bit/sec modem.

For their products, AT&T, MCI and Sprint provided 750,000 records totaling approximately $60,000 to $75,000 in long-distance expenses. However, for Cable & Wireless' product, we tested the software with only 3,000 records. The smaller data set size reflected the small to midsize customer base of most Cable & Wireless users. AT&T, MCI and Sprint distributed their data on CD-ROM, while Cable & Wireless used a diskette for its customer records. We then assessed the products based on their performance in 14 categories. Within each category, products were ranked on a scale of zero to 10.

into adding such security features.

All of these programs can generate two forms of reports — standard and custom. Standard reports are typically one- or two-button tasks. Each carrier gives customers the ability to filter certain types of data from each standard report, such as printing the standard report for all calls made to a specific exchange that lasted more than 30 minutes in duration.

SDN Billing Edge and FONView offered 73 and 69 standard report options, respectively. CMS and Perspective had fewer options, 33 and 26, respectively. Perspective and FONView boiled down the data to an average cost per minute for customers, while AT&T and Cable & Wireless could not. FONView can calculate the cost per minute based on four factors: usage, nonusage, promotions and discounts. The last three items may be toggled on and off as desired.

Customized reporting is what differentiates these packages from one another. SDN Billing Edge and FONView have separate ad hoc reporting functions. In contrast, Perspective users can generate customized reports by filtering the data in standard reports, but this method is more cumbersome and does not give users the flexibility to design all of their desired reports.

needs. The Executive setting gives users access to a list of graphical reports, such as bar and pie charts, that can be used to summarize billing information.

REBILLING CAPABILITIES

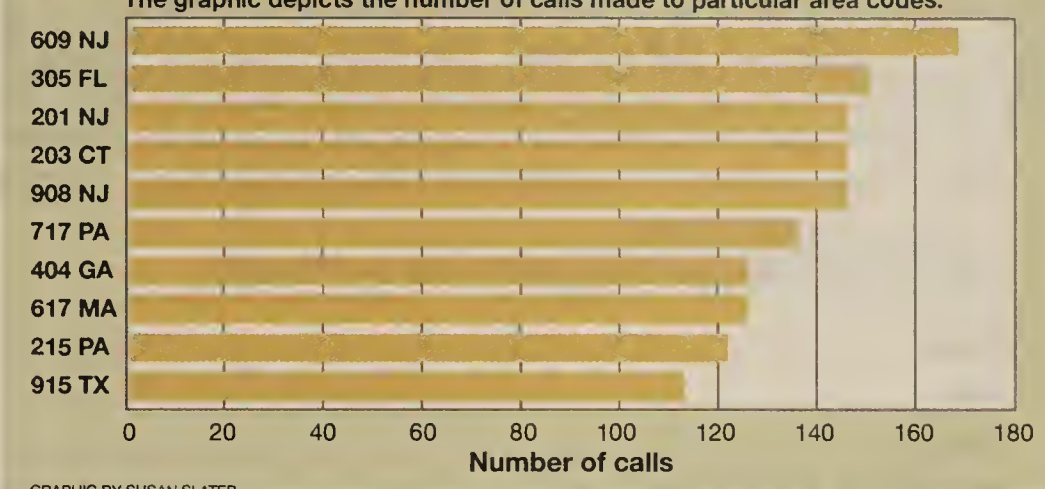
All four of these packages offer rebilling capabilities — a must for sites with internal chargeback requirements. Each package can use a percentage or flat-rate formula to mark up or discount internal telephone bills. SDN Billing Edge offered the best rebilling capability; it was easy to use, and we were able to perform most of our rebilling tasks with standard settings.

CMS, although weak in other areas of testing, offered a useful rebilling function. We were able to create seven standard reports, including rebilling by account code summary, individual call detail and authorization codes.

We were particularly interested in the name substitution feature offered by SDN Billing Edge, CMS and FONView. Using this capability, we were able to substitute names for authorization codes, bill groups, telephone numbers, master customer accounts, dialed numbers, originating numbers, destination numbers and credit card numbers. In fact, we found that with these three packages, we could

MCI's Perspective

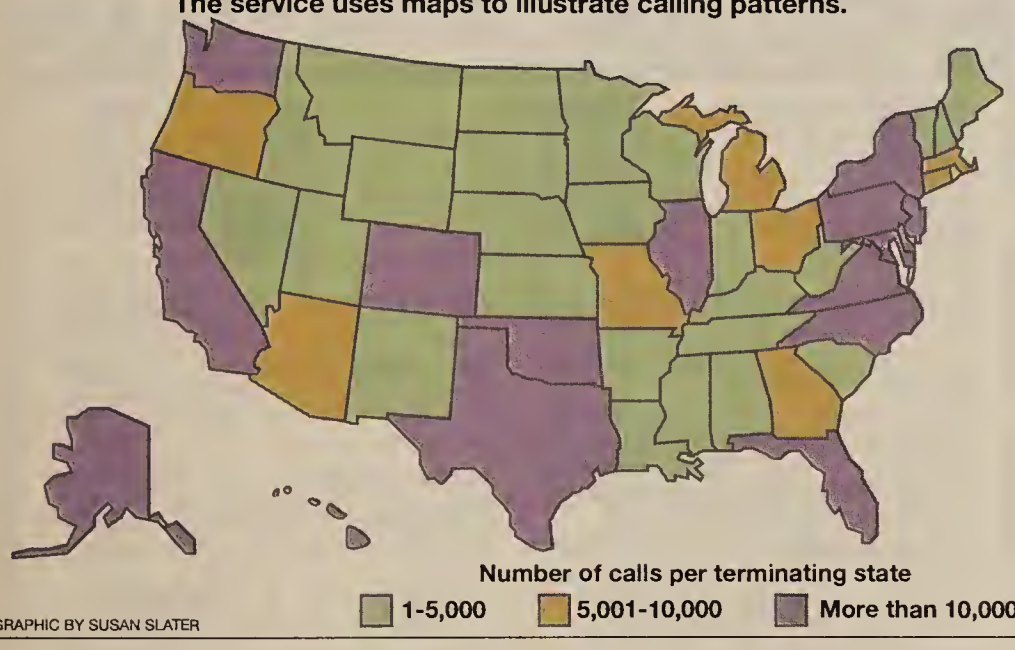
This is a representation of the type of 2D and 3D graphs Perspective can create. The graphic depicts the number of calls made to particular area codes.



GRAPHIC BY SUSAN SLATER

AT&T's SDN Billing Edge

This is a representation of an SDN Billing Edge report. The service uses maps to illustrate calling patterns.



GRAPHIC BY SUSAN SLATER

Although this approach will generate much of the data required by users, an ad hoc reporting capability would simplify the task and add more flexibility to the product. MCI plans to add an ad hoc report capability to Perspective in future software releases. CMS also offers customized report capabilities, but the data must first be exported to another software package — Q&A database program.

We were impressed with the powerful customize options provided by SDN Billing Edge and FONView. FONView draws data from 32 database tables and allows for cross-service reporting. SDN Billing Edge does not have as many database tables to draw data from (13) but provides the most options for defining report structures. MCI is planning to add full customization in future releases.

Each of the products, except for FONView, provide a one-touch report generation capability that allows customers to produce a standard set of reports each month. SDN Billing Edge takes this a step further, however, with its Production Profile function.

With this function, users can choose from several predefined profiles, such as Executive, and multiple users can define their own one-touch profile, depending on their specific generate a virtually numberless bill. MCI officials state that name substitution will be added to the next release.

PERFORMANCE CONSIDERATIONS

These packages handle their data processing differently, which directly affects their overall performance. FONView and SDN Billing Edge process the data directly from the CD-ROM. SDN Billing Edge does require users to download historical data to a hard disk drive, but AT&T officials say this requirement will be eliminated in future versions of the software. CMS and Perspective, on the other hand, place a greater burden on system resources, requiring all data to be downloaded to a hard disk prior to processing.

For our database of 750,000 customer record accounts, we needed 98M bytes of disk space. Had we been working with 750,000 records for CMS, the space required would have been the same as it was for the other products.

For the sites that can free up such large amounts of disk space, there is a reward — better performance. Despite the performance improvements of CD-ROM drives, hard disk drive seek times are still measurably faster than those of CD-ROM drives. If the reporting and analysis routines require frequent access of the storage media, this may, in fact, prove to be an important consideration. But, for many sites, the performance of the CD-ROM drive will be more than adequate. Firms with smaller sites that do not have CD-ROM drives — and do not want to purchase them — may decide that sacrificing the disk space is a better alternative.

We found that FONView was the fastest for standard reporting, but SDN Billing Edge did not trail far behind, at least when we analyzed current data sets.

We found that FONView was the fastest for standard reporting, but SDN Billing Edge did not trail far behind, at least when we analyzed current data sets. Some of SDN Billing Edge's historical reporting functions require substantially more time because the data must be downloaded to a hard drive for processing.

FONView's and SDN Billing Edge's processing speeds are directly attributable to the way their data is distributed to users. All of the data that is distributed to user sites is presorted and indexed, reducing the processing time required to retrieve and analyze information.

FONView's data sets currently ship with 32 indexes, and, according to company officials, five more will be added to the next version, which will be released later this quarter. Similarly, AT&T uses 13 indexes to organize its data sets. And, like Sprint, it plans to increase that number to 30 in future versions.

Perspective and CMS do not use preindexed data, which means that before most reports can be run, the software must sort the information. This is not a trivial task. During our testing, we found that it required more than an hour to generate certain reports when we used the nonindexed software programs. In contrast, only a few seconds were needed to generate the same reports when we used programs that relied on indexed data sets.

Although both Perspective and CMS were unable to match the performance of FONView and SDN Billing Edge, we were more disappointed with Perspective's performance. Its lack of speed precluded any quick searches and discouraged us from too much experimentation.

These products do not offer much in the way of graphics, either, but what they do offer is more than adequate for most reporting and presentation needs. SDN Billing Edge uses two maps to depict traffic flow between geographical locations. FONView offers 22 two-dimensional graphs, which is, by far, the most. The other two packages have fewer graphical options, but Perspective does offer three-dimensional graphs. In reality, the graphics for these products are more than adequate for most presentations.

SDN Billing Edge supports the greatest number of data export options so that information can be loaded into other programs. The software supports export formats such as ASCII, .WK1, .WKS, .XLS, .WRI, .WRK, .DIF, .MOD, .SYLK and .DBF formats. Cable & Wireless supports ASCII and .DBF; MCI and Sprint support ASCII only.

Prior to the availability of these rebilling products, many companies would extract billing data from magnetic tapes and use spreadsheets or in-house programs to analyze the information. Unfortunately, some habits die hard. For those user sites that continue to rely on outside programs for data analysis, this data export feature will provide a way for them to continue their old practices.

PHONING IN THE RESULTS

All of the products that we tested offered basic reporting and analysis capabilities. Two of them — FONView and SDN Billing Edge — complemented these standard reporting capabilities with ad hoc reporting options.

We think these products need even more than just the basics. Cross-service reporting should be a standard feature for all of these packages. Currently, only CMS and FONView offer that features. We also think these vendors should design their programs to work with the data provided by other long-distance carriers. After all, many sites are interested in simplifying their reporting tasks. By providing their software with the ability to manage data generated by other carriers, these vendors will go a long way toward satisfying their customers.

Finally, all of the carriers must take analysis and reporting to the next logical step — electronic invoicing. AT&T has begun providing this capability by linking SDN Billing Edge with its EDIView. Sprint officials say they are planning to give FONView some electronic invoice capabilities but have not provided any timetables.

Despite some shortcomings, we found that all of these products offered useful features. FONView and SDN Billing Edge, however, brandish a broad array of features and good performance, which set them apart in this competition.

➸ Langner is a senior analyst at TeleChoice, Inc., a Verona, N.J., consultancy specializing in strategic planning and analysis of intelligent networks, services and applications. He can be reached at (201) 239-0700 or via MCI Mail at DBriere (445-4690).

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169	170	171	172	173	174	175	176	177	178
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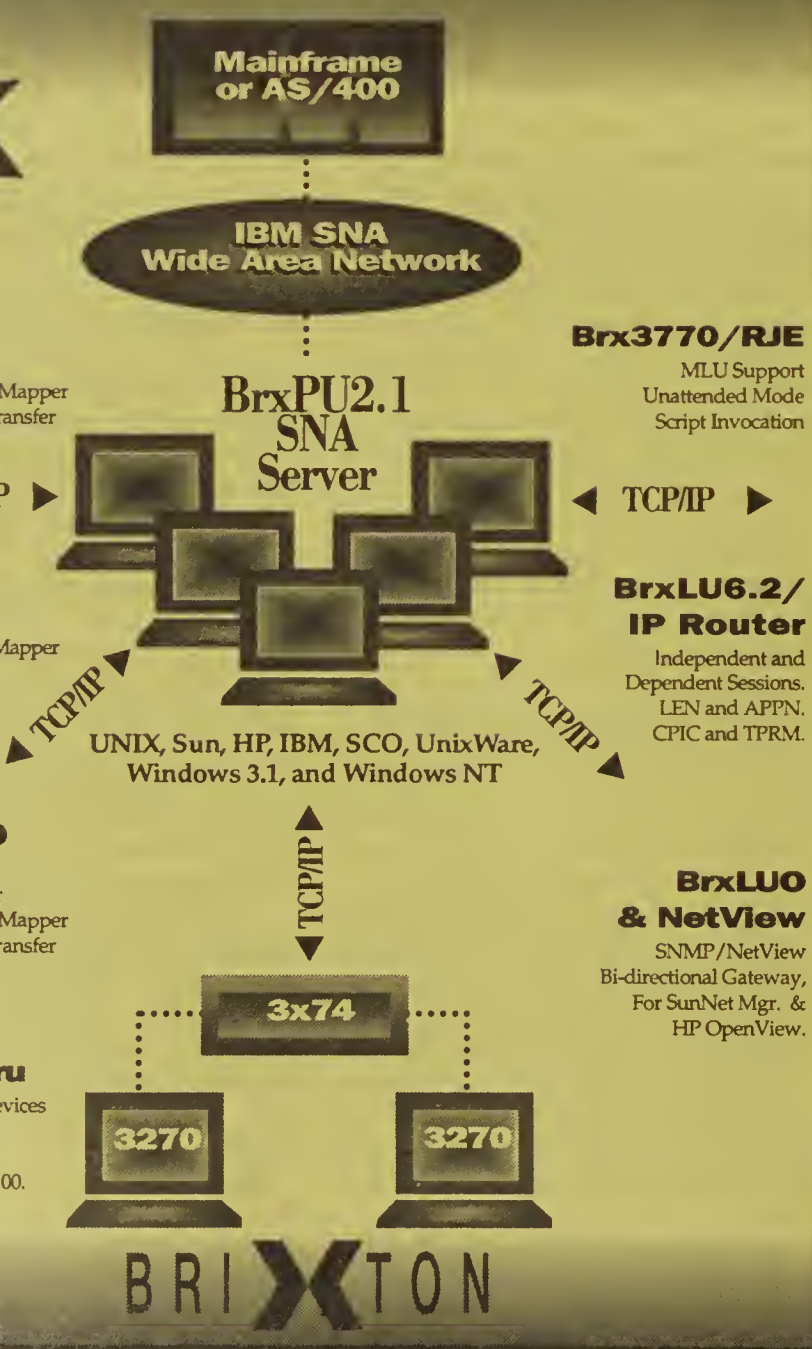

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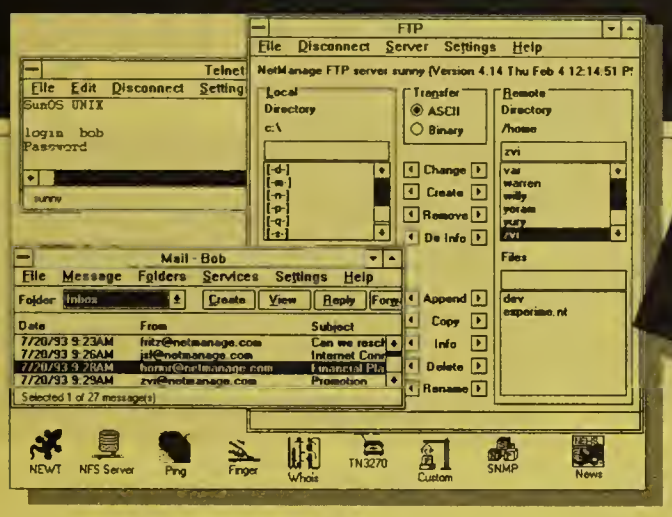

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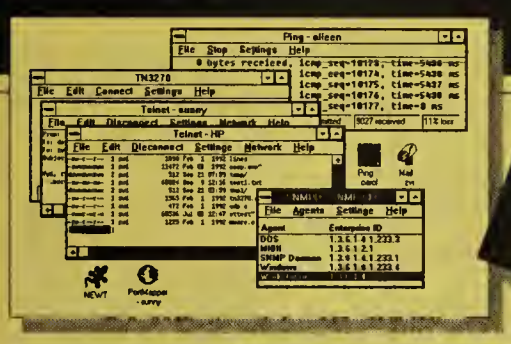

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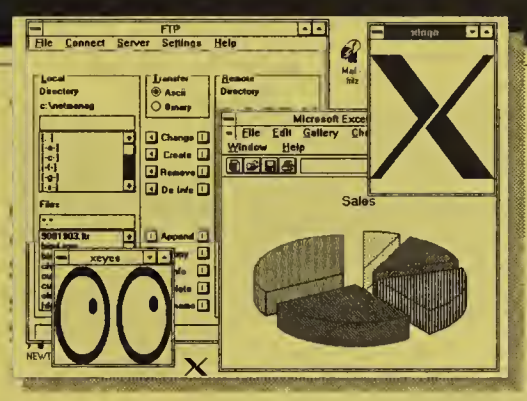

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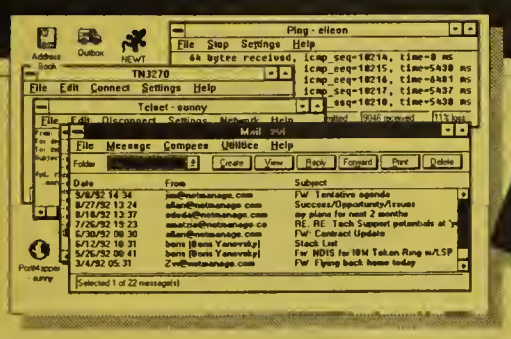

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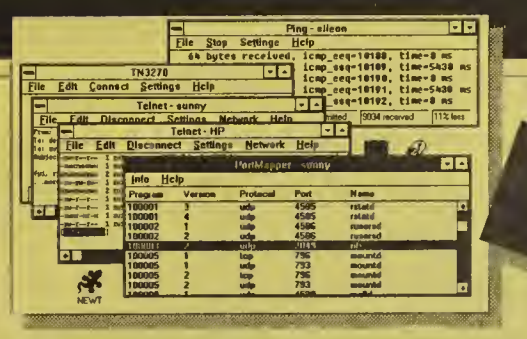

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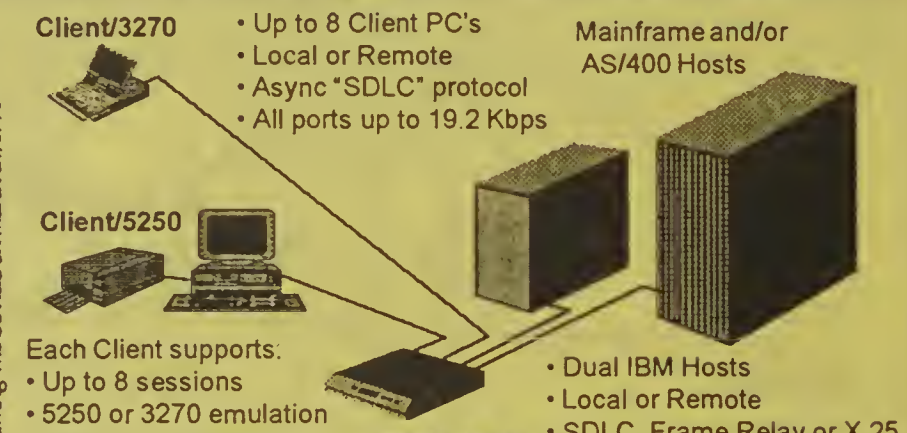

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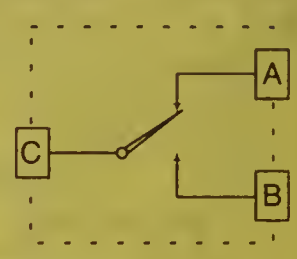

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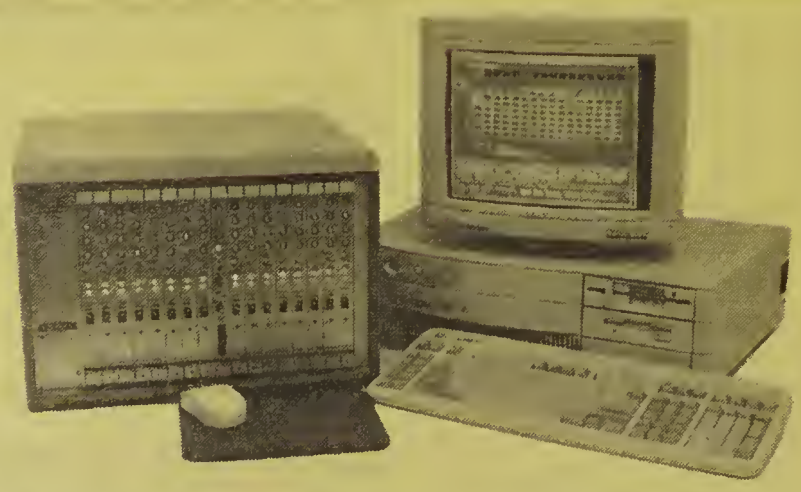

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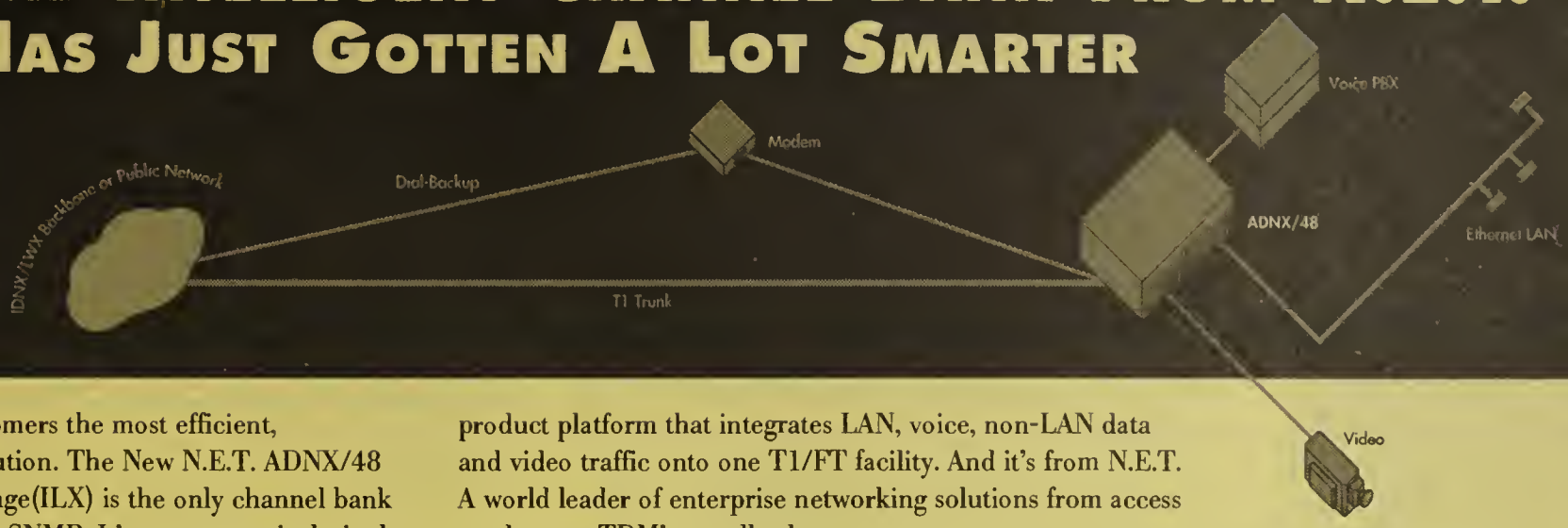

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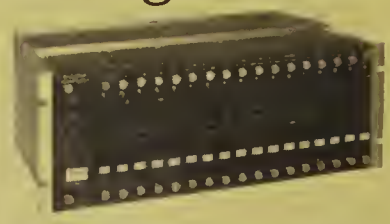

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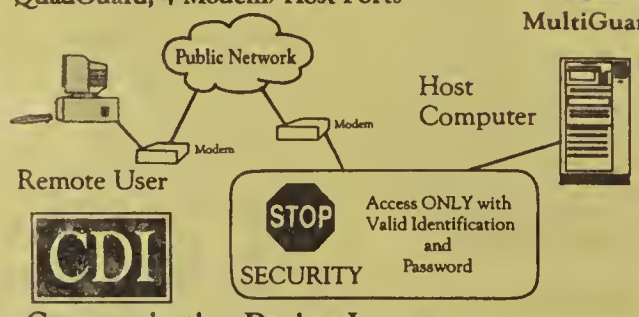

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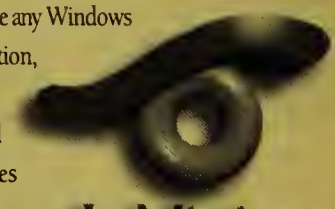

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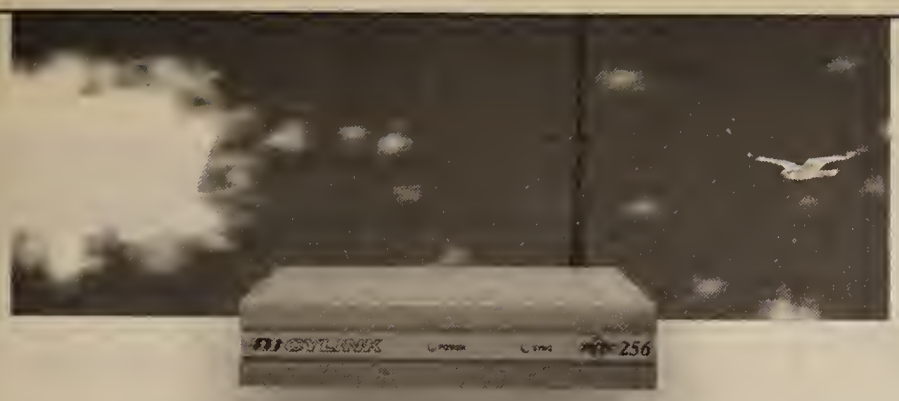

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California start-up set to launch national SMDS

BY BILL BURCH

Sacramento, Calif.

While many carriers are hedging their bets on SMDS, a new interexchange carrier in Sacramento, Calif., called Pacific Access Communications and Key Emerging Technology Services, Inc. (PACKETS) plans to offer nothing but SMDS.

Switched Multimegabit Data Service (SMDS) users are begging for a national service, according to Steven Garner, PACKETS' business development manager. All that's needed for the market to take off is a low-speed switch interface that will let national carriers connect to locals, and that's just around the corner, he said.

"We anticipate local exchange carriers...will have [intercarrier interface] capabilities in the third and fourth quarters of this year," and that's when PACKETS will roll out its service, Garner said.

PACKETS is a recent start-up by Pacific Access Corp., a Sacramento holding company with interests in systems integration, and computer leasing and refurbishing.

The carrier is looking for other backers, and is in negotiations with a long-distance carrier and three regional Bell holding companies, according to Julie Pulos, Pacific Access president. So far, however, PACKETS has a mere $100,000 in funding, according to Pulos, who declined to discuss the company's finances in detail.

Although launching a new national network might seem a long shot for a small firm like Pacific Access, Garner hopes to beat the odds by keeping his overhead low and concentrating on a few urban markets.

Like MFS Communications Co. and other competitive access providers (CAP) have done, PACKETS will concentrate its early efforts on high-density urban areas like Chicago and East Coast metropolises. The carrier will launch its network in the second quarter and serve companies in 10 to 15 local access and transport areas. General availability will begin in the third or fourth quarter, with service in roughly 45 LATAs.

On the net side, Garner thinks he could get by with a few small switches in Denver and Washington, D.C. The firm will lease lines from AT&T and take advantage of ATM transport as that becomes available, he said.

With low overhead, PACKETS will be able to offer flat-rate SMDS service for $500 to $96,000 per month. Pricing will based on speed, distance covered and number of locations served; available speeds will be 4M, 10M, 16M and 34M bit/sec.

One of the keys to any SMDS launch is a T-1 intercarrier interface that can supply users with low-speed SMDS. But switch manufacturers have been slow to deliver the interface, holding up SMDS availability, according to Paul Weichselbaum, vice president of data marketing for MCI Communications Corp.

PACKETS is still a long way from bringing customers on-line. For example, the carrier will not be able to begin beta-testing its net until the service's controlled introduction in the second quarter. But as long as there's unmet demand, Garner believes he has a chance.

" There really wasn't anybody who was going to go aggressively after [SMDS]," Garner said. "We decided that we had the skill sets and the interest...so we put together a business plan, sought some investment interests, and it's all coming together for a hopefully successful third-quarter launch of service."

But analysts question PACKETS' chance. Mark Langner with TeleChoice, Inc. in Verona, N.J., does not think SMDS will grow much beyond high-speed regional nets, although he said PACKETS might have found a niche market should that happen.

Without a low-speed intercarrier interface standard in place, PACKETS' announcement may be premature, said analyst Tom Nolle of CIMI Corp. in Voorhees, N.J. Without solid funding, PACKETS may not be able to hold on until a standard emerges, more carriers offer the service and a market develops, he said.

SMDS

Continued from page 1

ago, they told us their SMDS service was available only on a limited basis," complained Pushpendra Mohta, director of engineering for California Education and Research Federation Network, an Internet access service company in San Diego.

Mohta said the connectionless nature of SMDS — which precludes the need for call setup mechanisms — lets him tie his network into the phone company using one link instead of 30 or 40.

Both AT&T and Sprint Corp. have snubbed SMDS, citing lack of market demand. Sprint has announced plans to run inter-LATA SMDS traffic over frame relay, and AT&T said it would link SMDS islands with ATM. WilTel also plans to run SMDS over ATM.

But users such as Clif Valentine, who handles network planning at printing company LP Thebault Co. in Parsippany, N.J., insist that "interexchange SMDS availability is critical to SMDS' success." LP Thebault is using SMDS service from Bell Atlantic to exchange graphics and large, time-sensitive data files with Fortune 500 customers and would like to branch out to do business with customers outside the Bell Atlantic region.

He and other SMDS users said they have applications that run best over SMDS, and they do not want to introduce other types of conversion or encapsulation equipment into their networks for carrying SMDS traffic over other protocols.

"I have the applications, [but] you don't have the services to support them economically," Frank Mooney, director of networking technologies at Blue Cross/Blue Shield of Maryland in Baltimore, accused carriers at the ComNet meeting.

Some users said they do not want to add the manpower required to maintain frame relay and ATM circuits. "With SMDS, we don't need to redefine routing tables if we need to go to a new destination," said Jerry Wayock, vice president of net services at Meridian Bancorp. Despite higher cost SMDS premises equipment, he estimated he is saving at least $25,000 a year in manpower for router table management.

Tom Nolle, president of CIMI Corp. and a speaker at the SMDS meeting, said "users are mouthing platitudes because long-distance SMDS is not required today." He said since internetworks are based on routers or bridges, users can connect their local-area networks to any service, such as frame relay or T-1.

Paul Weichselbaum, MCI's vice president of data marketing, however, cited the following advantages to SMDS: scalability beyond T-1 speeds; well-defined, inherent source and address screening; and virtual meshing, which allows users to "plop new users on an SMDS network." The net sends a message out that the new node is there, he said, allowing connectivity akin to what users would get with meshed T-1 lines between every network point.

If SMDS cells are encapsulated in frame relay or ATM, they cannot access SMDS security and global addressing features, he pointed out.

ATM promise is longer term

While some carriers are writing off SMDS as merely an interim step to ATM nirvana, the waiting period could stretch several years, leaving existing SMDS users in the lurch for some type of high-speed interconnection relief.

"All of the exciting things about ATM are not here today," said John McQuillan, president of Cambridge, Mass.-based McQuillan Consulting, in a ComNet '94 address last week.

During his speech, he largely backed away from Asynchronous Transfer Mode's (ATM) near-term viability.

One reason is that ATM standards for optimizing the transport of multimedia traffic are still embryonic (*NW*, Jan. 24, page 5).

"Seamless ATM will not be a reality anytime soon," McQuillan said.

Other reasons, he stated, are that congestion control is the "great unsolved ATM problem," and ATM "has never had great multicast capabilities" — issues that must be resolved before ATM becomes deployed en masse. He also pointed out that ATM at slow speeds is less efficient than frame relay.

But McQuillan predicted that replacing private lines with bandwidth-on-demand offerings — such as Switched Multimegabit Data Service and switched virtual circuit versions of ATM and frame relay — will be the biggest challenge for network managers in the second half of the '90s.

McQuillan said he believes that ATM will evolve over time as user companies make small, niche investments first in their backbones and then in their work groups — as applications warrant.

BY JOANIE WEXLER

Boeing

Continued from page 1

Dupler is on a team of analysts at Boeing attempting to poke holes in EMS while running it on three Microsoft Windows NT servers.

EMS is being evaluated by about 100 companies and will soon enter an official beta program, a Microsoft official said last week (see story, page 29).

Microsoft has been talking up its next-generation E-mail system for some time. EMS — as it is currently called — is geared toward users of large E-mail networks looking for a high-performance product that provides systems administration, security and standards support. As such, EMS will be a key part of Microsoft's bid for more corporate accounts.

Clients have less need for read/write and create/delete access to the server in EMS and other client/server E-mail systems, thus reducing security concerns.

Dupler said Boeing has been working closely with Microsoft on EMS since August.

In his opinion, EMS could potentially help firms reduce the amount of manual administration needed to run a large E-mail net. EMS is designed to dispatch systems probes to monitor the net, collect information and report the components' status. Dupler said Microsoft calls this function Mailbeat because it continuously monitors the pulse of the system.

Mailbeat can be configured by the net administrator to collect data at specified frequencies on individual mailboxes, E-mail gateways and other E-mail net components. It is designed to update the administrator at a system console, where the net's status can be viewed in a graphical format.

EMS also will include an E-mail database, which will handle the storage and management of such components as directory information, messages and individual user profiles. Dupler said current Microsoft E-mail products use a file storage system, whereas EMS will have a full-blown database where messages are stored as database records. The benefits are increased reliability and security.

The database is "some new 32-bit database technology that Microsoft is revving," Dupler said, "and I've been led to believe it is some close cousin of [Microsoft's NT-based] SQL Server."

To a great extent, security is addressed with EMS' client/server architecture, Dupler said.

Many current E-mail systems are based on a file-sharing model in which the server is passive and the client carries more of the intelligence load. With the client/server model, the back-end server assumes far more responsibility, governing mail traffic and managing data about the mail environment.

As a result, clients have less need for read/write and create/delete access to the server in EMS and other client/server E-mail systems, thus reducing security concerns.

Dupler's biggest knock against EMS is the software's standards support or lack thereof. EMS is supposed to support both the X.400 message transport and X.500 directory services specifications, he said.

"We have not yet gotten the definitive word," Dupler said. "We may have to wait for a second release to get all the X.500 protocols. All the X.400 protocols are there, though."

The directory services specification support is of "critical importance," Dupler said, because of Boeing's overall plan to eventually build a corporate white pages.

"It is not just the X.500 compliancy [that's important about EMS], but rather the support of protocols necessary to link it to other directory services," he said.

Lifeline

Continued from page 1

OpenView-based systems, such as NetView/6000.

Ki also said it will support the Simple Network Management Protocol proxy agent in HP's recently announced OpenView 3.3 to translate DECnet management messages into SNMP data and vice versa.

Emphasizing its commitment to help DEC users move quickly to the HP and IBM management platforms, Ki said it will focus its software development efforts solely on OpenView and NetView/6000, ceasing development work on SunConnect and NetLabs, Inc. management platforms.

Users said Ki's strategy will help them migrate to NetView/6000 or OpenView without throwing away their investment in Polycenter Framework, formerly called DEC Management Control Center Director (DECmcc).

"The DECmcc migration path that Ki provides is an excellent return on investment for the abandoned DECmcc product," said Ian Maclellan, senior strategy planning engineer at Hydro Electric in Burghmuir Perth, Scotland.

Ki develops openDNM, a DECnet management application that runs on OpenView and NetView/6000. The application could become particularly attractive to DEC users given that DEC — in an effort to stimulate sales of its Alpha hardware — is phasing out its Polycenter Framework in favor of NetView/6000 as a strategic management platform (*NW,* Aug. 30, 1993, page 1).

DEC's move left a bitter taste in the mouths of many users who expressed concerns, including doubts about the ability of the SNMP-based NetView/6000 system to manage DEC environments.

DEC is expected to ship its NetView/6000 offering, which it calls Polycenter NetView, by April. But the platform will lack DECnet management capabilities until DEC ships the Digital Network Manager package shortly thereafter (*NW,* Dec. 20, 1993, page 50). And DEC has yet to articulate a clear strategy for migrating Polycenter Framework users to the new platform.

Calls to DEC Polycenter officials were not returned by press time.

Meanwhile, Ki is touting the fact that it has been providing DECnet management from OpenView-based platforms since 1992. The company will soon provide a migration path from Polycenter Framework to NetView/6000 via its relationship with Phoenix.

"The emperor's buck naked, and Ki's holding the silk suit," quipped Dan Smith, openDNM product manager.

The silkworm is Ki's partnership with Phoenix. Phoenix develops software, called Six2Dmcc, that lets host-based NetView users receive alerts from DECnet nodes and issue commands to Polycenter Framework systems. Data transfers between NetView and DEC nodes occur via IBM's LU 6.2 session type.

The key to Six2Dmcc is that it allows DEC users to continue using Polycenter Framework.

Ki and Phoenix are bringing this technology to OpenView and NetView/6000. In the second quarter, Ki plans to roll out a layered openDNM application — which Smith referred to as DECmcc Migration — that supports Six2Dmcc interfaces.

With DECmcc Migration, Six2Dmcc agent software will continue to reside on VAX-based DECnet nodes, including those running Polycenter Framework. But instead of communicating directly with Phoenix LU 6.2 software on a DEC server as they usually do, the agents will pass alerts to Ki software on a Unix-based OpenView or NetView/6000 server.

The Ki software will translate the DECnet alerts into SNMP TRAPs and send them to the OpenView or NetView/6000 Event Manager. Network managers will then be able to send remedial commands back to Polycenter Framework — using that system's syntax — from OpenView and NetView/6000 displays.

By supporting the Six2Dmcc agent software, Ki's DECmcc Migration software will allow DEC users to continue using Polycenter Framework along with NetView/6000 or OpenView. Currently, Ki's software does not work with Polycenter Framework; it works with DEC Phase IV's Network Control Program management language.

"The emperor's buck naked, and Ki's holding the silk suit," quipped Dan Smith, openDNM product manager.

Until DEC responds, Ki has cornered the market on Polycenter Framework-to-NetView/6000 migration tools, analysts said.

"They are pretty much about the only game in town for that space," said Jill Huntington-Lee, principal analyst at Brandywine Network Associates in Cinnaminson, N.J. "There's a need out there. There are a couple thousand installations that could benefit" from DECmcc Migration, she said.

Preliminary pricing for DECmcc Migration will range from $2,000 to $10,000, Smith said.

For users managing DECnet environments from OpenView, openDNM will soon support the proxy agent in OpenView 3.3 (*NW,* Jan. 17, page 14). The proxy agent will convert DECnet Network Information and Control Exchange protocol messages to SNMP messages and vice versa. It will also allow OpenView users to automatically populate the OpenView configuration database with information on DECnet nodes managed through the proxies.

Smith said Ki had not yet established a release date for support of OpenView 3.3's proxy agent.

✆Ki: (800) 945-4454.

FEP family

Continued from page 1

"We think that the 3745 has a role in the emerging ATM and APPN networks, and we intend to add enhancements that will keep it a viable piece of those environments in the future," said Daniel Sazbon, planning manager for IBM's communication controller products. "The ATM interface should be ready by the end of the year."

The ability to upgrade a front-end processor (FEP) to support Advanced Peer-to-Peer Networking (APPN) and ATM could save users thousands of dollars vs. buying new equipment for those functions.

IBM is working on an ATM interface board that would fit in the 3746 Model 900, an expansion box for the 3745 that is controlled by the FEP's Network Control Program, Sazbon said. With the ATM interface, Systems Network Architecture or LAN traffic that comes into the 3745 could be switched inside the 3746 Model 900 and sent out over an ATM link.

According to Frank Dzubeck, president of the Communications Network Architects, Inc. consultancy in Washington, D.C., the 3745's ATM interface will operate at up to T-1 speed, although IBM said it has not formally settled on a speed.

"Anything that promises us a link to higher speed nets in the future is of interest to us," said Gerry Williamson, senior systems programmer for communications at Provident Life and Accident Insurance Co. "ATM is one option we'd like to have."

On the APPN front, IBM is exploring the idea of adding Network Node (NN) support to the 3745. A 3745 can support APPN traffic today by working with VTAM on the mainframe. But many users have 3745s in remote sites that are not attached to a host.

IBM is working on two ways of supporting APPN NN on the FEP. One involves adding a prototype System/390 mainframe board and a small VTAM version that supports APPN on a 3172 or possibly a large OS/2 workstation. IBM already sells a S/370 board that lets a Personal System/2 become a mini-mainframe.

The prototype would handle APPN flows from other APPN NNs or End Nodes on behalf of the FEP.

Under the second option, IBM would put a large OS/2 workstation running APPN NN in front of the FEP to handle APPN communications, while the FEP handles traditional SNA data flows. This is intended to let users gradually wean themselves from the 3745 as they migrate to APPN.

That option, while much less complicated, will not provide the same level of dynamic path definition and net management capabilities that VTAM supports under the first configuration.

"Both prototypes are operating in our lab, and users have expressed interest in both," Sazbon said.

Added Robin Layland, principal consultant with Layland Consulting in West Hartford, Conn., "It wouldn't help IBM sell more 3745s, but users might rethink how fast they would get rid of existing boxes."

On the hub front, IBM said it will add frame relay, APPN NN and tn3270 support to the 3174 module now available for intelligent LAN hubs jointly developed by IBM and Chipcom Corp.

The 3174 module lets users link legacy 3270 devices to the hub, and ultimately to LAN internets, without separate controller hardware or leased lines.

Frame relay and APPN support will enable the 3174 module to dynamically pick multiple routes for SNA data to flow, control pacing and prioritize traffic, while tn3270 support will enable 3270 devices to connect to Transmission Control Protocol/Internet Protocol hosts. Today, the 3174 can only support one data path over a Synchronous Data Link Control line, and it cannot prioritize traffic.

IBM also discussed its net management directions and added a few products to its repertoire.

"What users will see from us this year is a series of applications that will help them manage LANs and their distributed networks," said Sanjiv Ahuja, director of enterprise management platforms in IBM's Networking Systems software division.

WALTER CALAHAN

IBM Networking Systems' Sanjiv Ahuja

The first such application is LAN Management Utilities (LMU)/6000, which lets NetView/6000 centrally monitor and control OS/2, DOS, Windows and Apple Computer, Inc. Macintosh workstations on IBM LAN Server and Novell, Inc. NetWare LANs.

LMU/6000 will be available March 25 for $6,950.

IBM also rolled out NetView Distribution Manager (DM) support on the NetView/6000 platform (*NW,* Dec. 13, 1993, page 1). NetView DM/6000 will let users distribute software to AIX clients from the NetView/6000 platform and from a mainframe. It will be available in February. Pricing was not available.

IBM promised future NetView DM support for Hewlett-Packard Co.'s HP-UX, and Sun Microsystems, Inc.'s Unix and Solaris platforms.

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